# The Oil and Gas Journal

PUBLISHED WEEKLY BY THE PETROLEUM PUBLISHING COMPANY AT TULSA, OKLAHOMA



P. C. LAUINGER, *President* — *Editor*, C. O. WILLSON

W. T. ANDERSON, *Managing Editor* — JAMES McINTYRE, *Consulting Editor*

W. T. ZIEGENHAIN, *Engineering Editor* — L. G. E. BIGNELL, *Prod. Engineering Editor*

C. K. FRANCIS, Ph. D., *Technical Editor* — W. L. NELSON, *Metallurgical Editor*

*Associate Editors*

T. F. SMILEY — T. P. SANDERS

DAL DALRYMPLE — PAUL REED

*District Editors*

**Houston, *Sterling Bldg.***
NEIL WILLIAMS — F. L. SINGLETON

**Fort Worth, *Petroleum Bldg.***
D. H. STORMONT

**Shreveport, *City Bank Bldg.***
GEORGE WEBER

**Los Angeles, *Union Oil Bldg.***
L. P. STOCKMAN

**Washington, *Natl. Press Bldg.***
HENRY D. RALPH

**Saginaw, *News Bldg.***
O. C. PRESSPRICH

**Denver, *State Office Bldg.***
TOLBERT R. INGRAM

**New York, *415 Lexington Ave.***
H. STANLEY NORMAN

**Oil City, *Derrick Bldg.***
J. P. O'DONNELL

**Chatham, Ontario, *Box 136***
VICTOR LAURISTON

S. H. ROURKE, *Business Manager*

M. F. BALDWIN, *Circulation Manager*

*Advertising*

E. KLAPPENBACH, *Vice President*

**New York, *415 Lexington Ave.***
C. L. CAIN

**Cleveland, *Leader Bldg.***
HOWARD MARKT

**Chicago, *300 W. Adams St.***
C. R. FARMER

**Tulsa, *211 S. Cheyenne Ave.***
KENNETH J. LANGLEY

**Houston, *Sterling Bldg.***
WAYNE RIVES

**Los Angeles, *1406 S. Grand Ave.***
J. HOWARD TINKHAM

**Cologne, Germany—*1 Laudahnstrasse***
A. J. CHAMBERS


# Table of Contents


Vol. 37, No. 24 — October 27, 1938


## News Developments


Summary ... 37
I.P.A.A. Stirred by Roosevelt Proposal for Regulation of Refining ... *L. G. E. Bignell* 38
Iowa Plan Blamed for Crazy Market ... *T. F. Smiley* 41
Opening New Fields on Frio-Vicksburg Trend ... *Nell Williams* 43
Pacific Coast A.I.M.E. Papers Cover Wide Technical Range ... *L. P. Stockman* 45
South Texas Geology Studied at Corpus Christi Meeting ... *Nell Williams* 47
Editorial: Hyde Park Compact ... 49
Programs and Meetings ... 50
News From State Capitals ... 51
News From Foreign Lands ... 53
Pipe Line Projects and Refinery Activity ... 54
Natural Gasoline and Natural Gas News ... 55
Obituaries ... 56
Bureau of Mines Estimated Demand ... 215


## Illinois Basin Section


Editorial: Look Ahead, Illinois ... 58
Estimated Acreage and Reserves in Illinois ... *L. G. E. Bignell* 60
Producing Practices Applied in Illinois Basin ... *Harry Simons* 62
Plan Long Drilling Campaign ... *Dal Dalrymple* 64
All Types of Drilling Rigs Find Work in Illinois Basin ... *Harry Simons* 66
Service on New Fields (Lake Centralia Field, Marion County) ... 71
Service on New Fields (Louden Field, Fayette County) ... 77
Refining Characteristics of Illinois Crude Oils ... *Gustav Egloff, G. B. Zimmerman and Jacque C. Morrell* 87
Birk Discovery Stimulates Exploration in Kentucky ... *Dal Dalrymple* 90
Service on New Fields (Birk City Field, Henderson and Daviess Counties, Kentucky) ... 97
Economic Position of the Illinois Oil Industry ... *Walter H. Voskuil* 101
1938's Developments in Illinois ... *Alfred H. Bell* 106
Wells Drilling Through Mines Require Casing ... 112
Map of Illinois Basin ... Opposite Page 138
Basin to Be Well Supplied With Pipe Line Outlets ... *L. G. E. Bignell* 147
Personnel Directory of Producing Companies Operating Properties in the Illinois Basin ... 148
Peculiar Provisions Uncovered in Some Illinois Basin Leases ... 172


## Engineering—Operating


Propane in the Manufacture of Lubricating Oils ... *W. B. McCluer, J. T. Dickinson and H. O. Forrest* 174
Fractionating Complex Mixtures ... *W. L. Nelson* 176
Pumping Problems in East Texas Fields ... *Robert M. Bass* 180
Operating Ideas ... 185
Questions on Technology ... *C. K. Francis, Ph.D.* 186
Problems From Readers ... *L. G. E. Bignell* 188


## Field Operations


Field Operations Summarized ... 191
Illinois-Kentucky-Ohio ... 192
California ... *L. P. Stockman* 194
Southwest Texas ... *F. L. Singleton* 197
Among Drilling Contractors ... 198
Oklahoma ... *Dal Dalrymple* 200
Louisiana and Arkansas ... *George Weber* 203
Eastern Fields ... *Staff Correspondent* 204
Gulf Coast ... *Nell Williams* 205
North and East Texas ... *D. H. Stormont* 206
Rocky Mountain Area ... *T. R. Ingram* 208
Kansas ... *Dal Dalrymple* 211
West and Central Texas and Panhandle ... *D. H. Stormont* 213
Michigan ... *Otto C. Pressprich* 216
New York-Pennsylvania Gas Operations 216
Canada ... *Victor Lauriston* 218
Key to Abbreviations ... 219
Wildcat Operations ... 219


## Markets and Prices


Crude Prices ... 196-234
Group 3 Market ... *T. F. Smiley* 230
A.P.I. Refinery Report ... 231
New York Market ... *H. Stanley Norman* 231
Tank-Wagon Market ... 232
Refinery Prices ... 233


## Additional Features


Personal Paragraphs ... 228
Record of Oil Securities ... 235
Equipment News ... 236
Classified Advertising ... 238
Advertisers' Index ... 240



SUBSCRIPTIONS: United States, 1 year, $6.00; 6 months, $3.00. Elsewhere, 1 year, $7.00; 6 months, $3.50. SINGLE COPIES: 20 cents. Price of any back copy more than 1 year old is 50 cents.



Copyright, 1938, by The Petroleum Publishing Company

# AN OPEN LETTER to-

**BAKER OIL TOOLS, INC.**

P.O. Box 71, Huntington Park, California

Cable Address . . . "BACASO

ILLINOIS BASIN OPERATORS:

It is just a year ago that we wrote you an "Open Letter" similar to this. Many things have happened during that year - leases have been signed up - tools and equipment bought - wells drilled - oil sold - and another major field has been proved up, with more proof to follow.

To all our customers in the Illinois Basin, we take this opportunity to say "Thank You" both for your orders and the confidence expressed in Baker Oil Tools. Operators who have not yet learned how Practical and Dependable all Baker Tools really are, will find it profitable to study this page.

For the convenience of all, we have established a Warehouse at Centralia, Illinois, with John S. Chick in charge. At Owensboro, Kentucky, we have genial J. (Jim) W. McCummings. Or watch out for R. C. (Bob) Glover, who is a "roving" Manager of the Eastern District.

Call "Baker" for Practical and Dependable Service.

BAKER OIL TOOLS, INC.

**BAKER CABLE TOOL CORE BARREL**
(Left) The choice of modern cable tool operators for securing complete, uncontaminated cores. It's easy and economical to operate and popular with the driller.

**BAKER ROTARY WALL SCRAPER**
(Right) A safe, dependable tool for enlarging walls of an open hole to a diameter greater than the casing through which it is run. Has strong, safe construction plus amazing reaming capacity.

**BAKER MODEL "B" DRILL PIPE FLOAT**
(Above) Provides a safe, efficient back pressure valve in the drilling string. Valve Assembly is constructed entirely without threads—the assembly being merely dropped into place in the body without the aid of wrenches or special tools. The most efficient drill pipe float made.

**BAKER CEMENT RETAINER**
(Left) Provides a better, safer, quicker way to do Squeeze Jobs: Recement: Cement Behind Sections of Pipe: Cement in Series: Plug Off Bottom Fluids: Test Upper Cased Formations. Also used as Casing Bridge Plug.

You will find complete information on the entire line of BAKER "Practical and Dependable" OIL TOOLS in the Composite Catalog.

**BAKER PORTABLE HYDRAULIC KELLY AND PIPE STRAIGHTENER**
A highly efficient and easily operated device for straightening Kelly or drill pipe as it hangs suspended in the derrick. *The entire unit is completely portable.*

**BAKER OIL TOOLS, INC.**

Telephone JEfferson 0211 – HUNTINGTON PARK, CALIFORNIA – 2959 E. Slauson Ave.
Telephone WAyside 2108 – HOUSTON PLANT AND OFFICE – 6823 Navigation Blvd.
MID-CONTINENT OFFICE AND WAREHOUSE:
Telephone 2-8083 – Tulsa, Oklahoma – 312 East Fourth Street
WEST TEXAS BRANCH OFFICE Odessa, Texas – Telephone 217
EXPORT SALES OFFICE Rm. 1910 – 19 Rector St., New York City Tel. Digby 4-1515
ROCKY MOUNTAIN HEADQUARTERS Tel. 2282–Casper, Wyoming – Box 1486

**BAKER BAKBLU CEMENT FLOAT SHOE**
Sectional View
Note internal construction of Baker-Formula Concrete and Bakelite. Here is . . .
STRENGTH
VALVE EFFICIENCY
DRILLABILITY

**BAKER BAKBLU CEMENT FLOAT COLLAR**
Meets the demand of those operators who prefer to stop the cementing plug one or two joints above the shoe, thus retaining cement tailings in the casing below the valve. Has same strong, safe construction as Bakblu Cement Float Shoe.

**BAKER BAKBLU CEMENT GUIDE SHOE**
This strong, safe casing shoe is made of seamless steel with a guide constructed of Baker-Formula Concrete. For successful results always use a Bakblu Cement Guide Shoe in conjunction with a Bakblu Cement Float Collar.

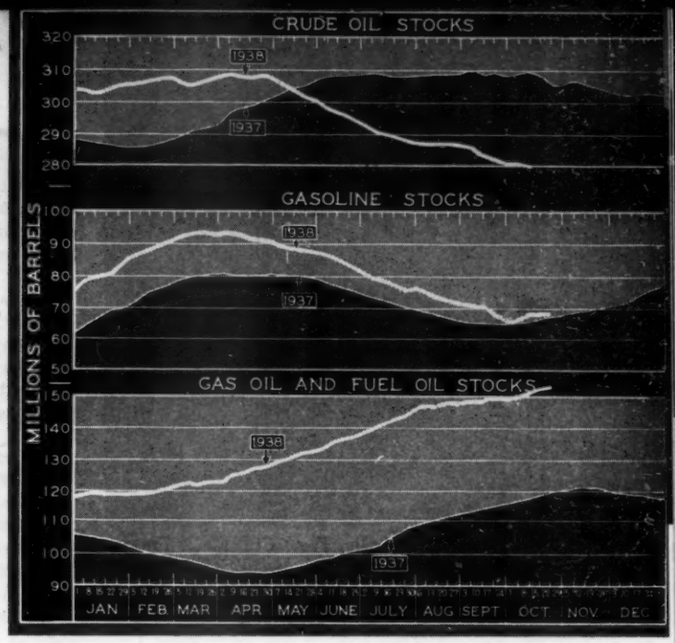
**BAKER BAKBLU CEMENT WASH-DOWN WHIRLER FLOAT SHOE**
Affords maximum cementing efficiency plus the added advantage of a down-whirler action that effectively washes away bridges and cleans formation when running casing.

**BAKER BAKBLU CEMENT WASH-DOWN WHIRLER GUIDE SHOE**
An efficient guide shoe that also provides wash-down whirler action so important when running casing where bridges or formation obstructions are present.

**SEE YOUR SUPPLY DEALER FOR BAKER EQUIPMENT**

# Trends

## Saturday-Sunday Idle Days Will Be Enforced In Texas in November




A GENERAL decline in crude oil production amounting to 28,621 barrels per day in the past week was not sufficient to bring total production down to the level it had reached in the week ending October 8. The decrease last week was 6,482 barrels per day less than the increase in the week ending October 15, during which week an almost general cut was made in crude oil prices east of California.

**CRUDE PRODUCTION** *3,246,507 barrels daily average—down 28,621. One year ago 3,622,798 barrels.*

**CRUDE STOCKS** *277,001,000 barrels as of October 15—down 2,006,000. One year ago 307,897,000 barrels.*

**GASOLINE STOCKS** *67,695,000 barrels as of October 22—down 731,000. One year ago 66,554,000 barrels.*

**GAS AND FUEL OIL STOCKS** *152,796,000 barrels as of October 22—up 148,000. One year ago 119,634,000 barrels.*

**REFINERY RUNS** *3,230,000 barrels daily week ending October 22—down 80,000. One year ago 3,380,000 barrels.*

The United States Bureau of Mines estimate of market demand for domestic crude oil in November is 24,000 barrels, or 1 per cent, more than the estimate for October, but is 5 per cent below the actual demand in November last year. The bureau believes that fuel oil stocks will be sufficient to supply early winter needs without requiring heavy runs of crude to stills, which would create an excessive quantity of gasoline.

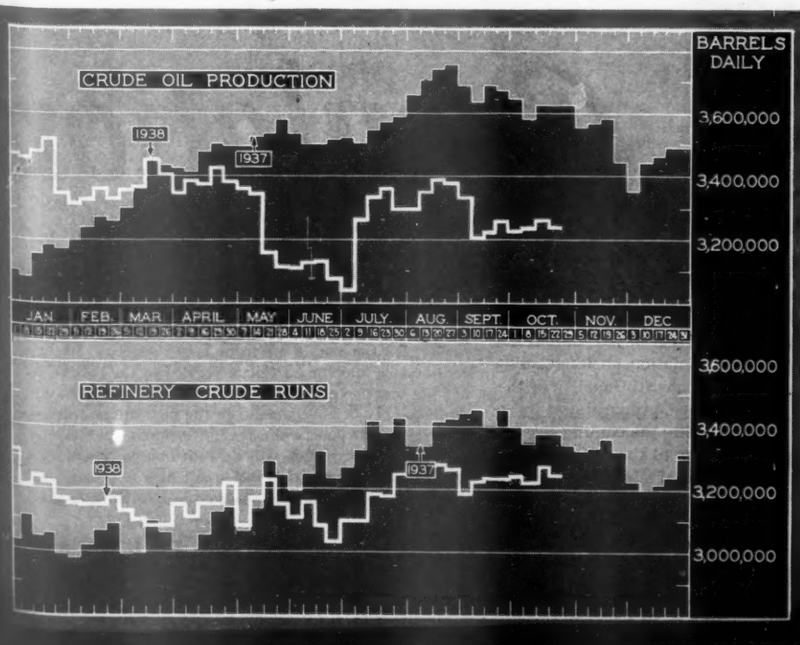
The development of the Illinois basin grows larger with the passing of the weeks. New work, mostly in two counties, Marion and Fayette, continues to be greater in volume than the number of completions. Potential production of the state is too large for the present pipe line facilities of the basin to cope with, and Owensboro Corp., one of the large purchasers of crude, has found it necessary to cut its runs per well in the important Louden field from 75 barrels to 50 barrels per day, a one-third reduction. This change was put into effect recently, and until more pipe line outlet is available pipe line proration will limit output. With the coming of additional pipe lines will come the danger of further crude price cuts.

The production situation in other states is well in hand. The Railroad Commission of Texas announced on Tuesday that Saturday and Sunday shutdowns would continue in that state through November. The commission made but little change in the net allowable production per day in the coming month. The Louisiana Commission is expected to make a cut of about 40,000 barrels per day in the November allowable in that state.

Although October consumption of gasoline is exceptionally heavy, both wholesale and retail prices lack stability. Tankcar prices over a large area underwent another drop of an eighth-cent, apparently prompted by the recent reductions in crude prices, notwithstanding the fact that these reductions had been thoroughly discounted before they actually arrived. Colder weather is imparting a slight tonic effect to the furnace oils, and increasing industrial activity is beginning to put the heavy oils in a moderately improved position. The meeting of Mid-Continent refiners in Fort Worth, Tex., this week to consider the possibilities of extending the Interstate Oil Compact to refining operations was a subject of lively discussion, and the report that President Roosevelt looked upon the plan with approval created a somewhat more cheerful sentiment in the trade.

### *DAILY AVERAGE PRODUCTION FOR WEEK*

| | Oct. 22, 1938 | Bur. Mines Oct. est. | Oct. state allowable | Oct. 15, 1938 |
|---|---|---|---|---|
| Oklahoma City | 104,950 | ..... | ..... | 108,925 |
| Fitts | 38,025 | ..... | ..... | 37,875 |
| Remainder of state | 307,800 | ..... | ..... | 310,250 |
| Total Oklahoma | 450,775 | 523,600 | 428,000 | 457,050 |
| East Texas | 369,850 | ..... | ..... | 369,749 |
| West Texas | 198,850 | ..... | ..... | 198,100 |
| North Central Texas | 104,847 | ..... | ..... | 104,450 |
| Texas Panhandle | 59,350 | ..... | ..... | 59,150 |
| East Central Texas | 89,900 | ..... | ..... | 90,150 |
| Gulf Coast Texas | 328,000 | ..... | ..... | 327,948 |
| Southwest Texas | 96,297 | ..... | ..... | 99,148 |
| Total Texas | 1,247,094 | 1,359,000 | 1,260,466 | 1,248,695 |
| North Louisiana | • 73,550 | ..... | ..... | 77,195 |
| Gulf Coast Louisiana | 193,048 | ..... | ..... | 191,156 |
| Total Louisiana | 266,598 | 248,400 | 260,470 | 268,351 |
| California | 668,900 | 619,000 | 610,000 | 682,500 |
| Kansas | 153,750 | 163,400 | 163,400 | 155,275 |
| Arkansas | 50,465 | 54,100 | ..... | 57,485 |
| Illinois | 87,205 | 51,900 | ..... | 87,515 |
| Michigan | 54,100 | 53,900 | ..... | 54,597 |
| Eastern Fields | 90,800 | 96,500 | ..... | 91,750 |
| New Mexico | 106,700 | 109,200 | 103,800 | 103,640 |
| Rocky Mountain area | 70,120 | 87,800 | ..... | 68,270 |
| Total United States | 3,246,507 | 3,366,800 | ..... | 3,275,128 |



*Roy B. Jones, Wichita Falls, Tex.; Col. E. O. Thompson, chairman, Interstate Oil Compact Commission; A. V. Bourque, Tulsa; Charles F. Roeser, president, I.P.A.A., Fort Worth, Tex.*

# I.P.A.A. Roosevelt & Regulation

## By L. G. E. Bignell

Dropping from the sky at Tulsa Airport, direct from Hyde Park with a message from President Roosevelt, Col. Ernest O. Thompson electrified the annual meeting of the I.P.A.A. with a dramatic account of the interview.

He said he found the president familiar with the present oil situation, knowing where the trouble was—in refining—and that Mr. Roosevelt suggested the way to handle the problem was to include the regulation of refining in the Interstate Oil Compact.

"Let us," Colonel Thompson urged, "do as the president suggests, immediately get the states which are interested in oil production and refining to indicate their willingness to come into the compact, so the facts will be ready for submission to Congress when it convenes. Then we will be ready to go to town.

"As the president said: 'Why, Thompson, it is just like a treaty. I get a treaty all ready, then submit it to the Senate for approval. You get your states all lined up, send your treaty to me and I will push it through as soon as Congress meets.' "

Immediate action followed Colonel Thompson's report. A special meeting of the Western Petroleum Refiners Association was called to assemble in Fort Worth, Tex., Wednesday, October 26.

A further quotation from the president's remarks during the interview that he "very definitely did not want to see any further federal extension of regulation of the oil business by Congress and the Government" was a welcome assurance to the industry.

At the annual I.P.A.A. banquet in the Tulsa Coliseum Friday evening Donald R. Richberg, former director of the N.R.A., reiterated his plea for "civilizing competition" through permissible self-regulation by the industry subject to scrutiny by representatives of the public interest.

"We need the cooperation of industry and government to insure the protection of private and public interests in maintaining a fair, but not a ruthless, competition as the democratic regulator of prices and of the rewards of labor, management and capital."

He added he was "convinced that the peculiar problems of the oil industry must be solved by the composite intelligence of those who have invested in it their lives, and that neither learned economists nor well-meaning politicians can lead the way to their solution."

*J. C. Ohaver, Tulsa; W. H. Gaddis, Hutchinson, Kans.; J. C. Hunter, Abilene, Tex. (director)*

### Committee to Study Issues

More than 1,000 men, from all sections of the oil country, were registered for the meetings at the Mayo Hotel, men who have been long in the oil business and, for the most part, have their own production or companies, built up by enterprise and hard labor.

Following free and frank discussion of various proposals presented, the committee on resolutions, of which Wirt Franklin of Ardmore and Oklahoma City, founder of the I.P.A.A., was chairman, offered the following resolution which was adopted unanimously after some debate:

Whereas, Certain proposed resolutions have been submitted to the resolutions committee of the Independent Petroleum Association of America by members of such association, action upon which, in the opinion of the resolutions committee, should be deferred until each of such proposed resolutions has been subjected to careful study and consideration by a special committee appointed for such purposes, and

Whereas, The time available during the present sessions is insufficient for such study and consideration as the seriousness of such proposals require,

Be it therefore resolved:

1. That the president of the association be authorized to appoint a special study committee, consisting of 36 members of the Independent Petroleum Association of America;

2. That there be submitted to such special committee for study the proposed resolutions relating to:

(*a*) Pipe line divorcement.

(*b*) Complete disintegration of all integrated companies.

(*c*) Temporary prohibition of all imports of petroleum and its products.

(*d*) Recommended total shutdown in all oil-producing states having regulatory bodies.

(*e*) Umpire to make allocations that are enforceable between oil-producing states.

(*f*) All other questions submitted to them by the president or executive committee.

3. That such special committee make its study and recommendations on each of such proposed resolutions to a special meeting of the members of the association to be held in December, 1938, on call of the president, or at such other and different times as may be determined by the president and the executive committee.

The sessions were opened on Wednesday with committee meetings. Thursday morning the general session convened.

Charles F. Roeser, president, in his annual address congratulated the association on its successful efforts in defending the constitutionality of the depletion deduction but urged preparations for a renewed attack, if made, during the coming session of Congress, taking advantage of the favorable impression made on the thought of a large percentage of members of Congress as well as among the general public. Another fruitful endeavor was in supporting the renewal of the Connally "hot" oil law. The I.P.A.A. has recommended that this law be made permanent and that the excise tax law and ratification of the Interstate Oil Compact be renewed.

*J. E. Farrell, Fort Worth, Tex. (vice president for Northwest Texas); Frank Buttram, Oklahoma City (vice president for western Oklahoma); Marvin Lee, Wichita, Kans. (director)*

Russell B. Brown, general counsel, presented his annual report at the afternoon session Thursday and concluded by stating:

In our capacity as businessmen we are in industry and not in government. The Government is an instrumentality which the American people have set up to secure the largest good for the greatest number. We have a right to use this instrumentality when we find it necessary. That is the essence of democratic government. Government which cannot be used by its people for their good is not democratic. When an important industry finds itself unable to perform acts necessary for its continuance and for its fullest service to the people, it has not merely the right but the duty to invoke the instrumentality of government. In the past the petroleum industry has asked from the government of various states legislation which will prevent abuses. The development of a great natural resource which is exhaustible and irreplaceable requires the cooperative work of gov-

*J. Steve Anderson, Oklahoma City (director); P. R. Rutherford, Houston, Tex. (director); Winston Henry, Houston, Tex. (director)*

*A. J. Weideman, Mount Pleasant, Mich.; H. B. Fell, Ardmore, Okla. (executive vice president); Van S. Welch, Artesia, N. Mex. (director)*

# ...A. Stirred by ...lt Plan for ...n of Refining

ernmental agencies. Both as individuals and as an association, we have supported the passage of measures which we felt were essential to the proper development of the petroleum resources of the country. Both state legislatures and the federal Congress have shown their willingness to give this assistance which we needed.

The problem of the industry should be solved by the industry. There may come times when this cannot be done without the assistance and the cooperation of the Government. The thing with which industry is concerned is the solution of the problem. If we can do it without federal action, then that will be fine. If we cannot—well, the problem must be solved.

Harold B. Fell, executive vice president of the association, asked for further cooperation in the oil industry to solve its problems, cooperation not only from everyone in the petroleum industry but cooperation from the public, from the governments of the oil-producing states, and from the federal Government. Some in the industry seem afraid to cooperate, he said. There are only two things to fear, Mr. Fell said, that we do not exert our very best efforts individually to solve the problem and that we permit our selfish interest to prevent our cooperating in what is best for the petroleum industry as a whole and for the nation.

One of the most important committee reports of the Friday session was presented by Burdett Blue, chairman of the public relations committee, outlining the aims of the association as follows:

Any program of public relations should be directed toward a certain definite goal, which in this case obviously is to inform and educate the public to the end that we may have its sympathetic understanding. It is also hoped that by so doing we may inform and educate those in public office so that they may have a clearer and more intelligent comprehension of the facts as they apply to the status, rights and situation of the independent oil producer.

We should attempt to dissipate the prevailing belief that the oil industry is owned and operated by a small group of large integrated companies.

The public should be told the part the independent producer has played in the development of this industry which produces a product so necessary to the industrial and social life of our nation. Looking back over the history of the oil industry we find that it has been the small independent operators who have discovered most of the major pools. It has been the little fellow in the business who in many cases has gambled his entire fortune in the wildcat operations necessary to discover the new pools which have made possible an adequate supply of petroleum to meet the needs of the nation.

It should further be shown that such independent producers are dependent largely upon the major integrated companies for a market outlet for their raw product and that the price the producer receives for his oil is determined by the purchaser. It should further be shown that the price of crude oil is not based upon the cost of production, but is determined by circumstances and conditions over which the producer has no control. It is important that we make known the number of producers, employes, and royalty owners who are dependent upon the oil industry for all or a part of their incomes, and that the economic security of all of them is directly dependent upon a compensatory price for crude oil. Also comparisons should be made showing the great reduction in the consumer cost of gasoline and petroleum products during the last 10 years.

### Five-Point Program

After much deliberation the committee on resolutions, through Wirt Franklin, chairman, reported the following five-point program:

The balance of supply with demand is imperative if the petroleum industry is to conserve this valuable natural resource at the same time that it promotes its most effective use. To obtain this balance, the three sources of supply should receive their proper share of the consumptive demand: domestic production, storage withdrawals, and imports. Excessive supply from any of these sources will adversely affect conservation policies. the domestic market, and the important intimate relationship between this industry and the other phases of our national industrial and financial life.

Therefore, Be it resolved that the petroleum industry at large be urged to take such action as may make effective the following five-point program:

1. The adoption by Congress of legislation definitely limiting the importation of foreign petroleum and its products to a fixed ratio to the estimated demand for consumption in this country and for export from this country, and establishing more equitable duties on these imports.

2. Some practical method whereby domestic production shall be held within the limits of national consumptive demand with each state, so far as this may be possible, assured of its equitable and proper share of the total national production; and a continuing survey of the quantities and quality of crude oil in storage, with a view to ascertaining whether this is or is not at its economic level, with the purpose of avoiding either uneconomic additions to or uneconomic withdrawals from storage.

3. The correction by Congress of admitted inequities in our present tax laws and the continuance by Congress of the percentage method of reckoning the depletion deduction for the petroleum industry at the existing rate.

4. The discontinuance of the costly practice of excessive drilling which adds to production costs, causes a decrease in daily allowables per well, and rarely results in advantage to any, substituting for this practice provision for the planned, orderly development of fields and pools by agreement.

5. Provision for voluntary agreements within the industry, subject to the approval of a proper federal agency.

### Resolution on Imports

In the interest of conservation of our petroleum reserves and for further purposes of stabilizing the petroleum industry and thus maintaining its purchasing and employing power, domestic producers of petroleum have accepted limitation of their production. By doing so they have avoided much waste of this irreplaceable natural resource. The federal Government has given a certain degree of approval to this policy through passage by Congress of the Connally "hot" oil bill, the continued authorization of the Interstate Oil Compact and the rejection by Congress of an attempt to prevent the Bureau of Mines from issuing its recommendation of production by states.

The balance of supply with demand is now ac-

*A. H. Ledbeter, Mount Pleasant, Mich. (director); Wirt Franklin, Ardmore, Okla. (past president, director); W. A. Goforth, Tulsa, (director); Charles E. Clowe, Ardmore, Okla. (director); C. J. Dexter, Artesia, N. Mex. (vice president)*

cepted, generally, as a vital conservation policy and an important stabilization factor.

Imports of petroleum products constitute an important part of our supply. These imports are not subject to the same regulations and the same limitations which have been accepted by the domestic petroleum industry. The excise taxes on these imports, which the recent Congress continued for two more years, are not high enough to act as a sufficient barrier to the importation of crude oil or fuel and gas oil.

Since the domestic petroleum industry is subjected to very fixed limitations as to the amount

*Russell B. Brown, general counsel, and Harold B. Fell, executive vice president*

it may supply to the domestic market and the export trade, it would appear to be only fair that foreign imports should have a similar degree of regulation.

Therefore be it resolved, That Congress is hereby petitioned to impose an adequate tariff on imports of petroleum and its products, and that until such time as this tariff may be adopted the present excise taxes on imports of crude oil and fuel and gas oil be increased from one-half cent to 1 cent per gallon, and that new excise taxes of $2 per ton be levied upon imports of asphalt, natural or otherwise.

It is further resolved, That Congress is hereby petitioned to adopt legislation restricting the imports of crude petroleum and its products to an amount not in excess of 4.5 per cent of the consumptive demand in this country as estimated by the U. S. Bureau of Mines.

It is further resolved, That Congress is hereby petitioned to repeal that section of the Revenue Act of 1932 which exempts from the excise taxes importation of crude petroleum and its products used for the supplies of vessels.

### Balance of Supply With Demand

The committee on balance of supply with demand presented a report saying: "We are still convinced that there can be no conservation of our natural petroleum resources nor any stabilization of the petroleum industry without a permanent, assured and effective balance of supply with demand for crude petroleum. To be effective, however, stocks must first be reduced to the lowest possible safe level in order to reduce above ground waste. Restriction in production to accomplish such a balance must provide equity to every oil-producing property in the nation and in the best interests of conservation, stripper well production should never be restricted."

Therefore be it resolved, That a program be accepted by the industry emphasizing the following proposals:

That the estimates of the total consumptive demand (including exports) made by the Bureau of Mines be considered by the regulatory bodies of oil-producing states and by the industry itself in fixing oil production allowable. We further recommend that the Bureau of Mines in its estimates of total consumptive demand (including exports) also estimate the portion of this demand that should be filled by withdrawals from crude oil storage at all times that such stocks are in excess of proper levels.

That the federal Government, through the Congress and the administrative department, take such steps as are proper to restrict further importation of residual fuel oils until such time as stocks of residual fuel oil, east of California, have been reduced to reasonable levels.

That we continue to have a standing committee on balance of supply with demand, to be appointed by the president of the association, and we further recommend that the committee on balance of supply with demand be given authority to continue the permanent subcommittee on unnecessary and unprofitable drilling.

Be it resolved, That this meeting suggests to the executive committee that as recommendations are made by the Bureau of Mines and state regulatory bodies of the amount of oil which should be produced from month to month, due consideration be given to the desire of this association to see the amount of crude oil and its products now held in above ground storage reduced at the earliest practicable date to a sound economic level to the end that we may soon see month-to-month production measured by current demand.

### Well Spacing Committee Resolution

It having been conclusively found that under proper reservoir control where the oil is kept in a liquid phase in the reservoir and withdrawn at slow rates of flow, one well will drain many times the area it would under old methods of open flow or greater rates of flow which allowed the gas in the oil to come out of solution in the reservoir. It has also been found that in water drive or combination water and gas drive pools the encroachment of water can be so regulated by proper rates of withdrawal to materially increase the ultimate recovery from a reservoir. Apparently therefore the adoption of a well-spacing program is a necessary factor in any solution of the industry's problem:

Therefore be it resolved, That the industry give careful consideration to the following recommendations:

1. That upon the discovery of each new pool, and before a second well is commenced therein, each and every operator who owns acreage lying within the probable limits of the pool take the initiative in working out a well-spacing program coupled with a plan for allocating allowable production in the pool which will eliminate, or at least discourage, the drilling of unnecessary wells.

2. That each and every operator who is interested in a pool which has been only partially developed likewise take the initiative in working out a program which will discourage the drilling of additional unnecessary wells.

3. That the proposal above outlined with respect to flexible well spacing coupled with a plan for allocating allowable production which will affect ratable withdrawals with respect to separately owned tracts of land be given careful and sympathetic consideration by the industry.

4. That individual operators and the executives of companies who are engaged in the business of producing oil become intensely interested in the subject of the drilling of unnecessary wells and take the initiative in working out programs which are so vital to the financial status of their companies.

There was some debate from the floor, especially on the resolution authorizing the president to appoint a committee of 36 to consider the several problems presented earlier in the meeting.

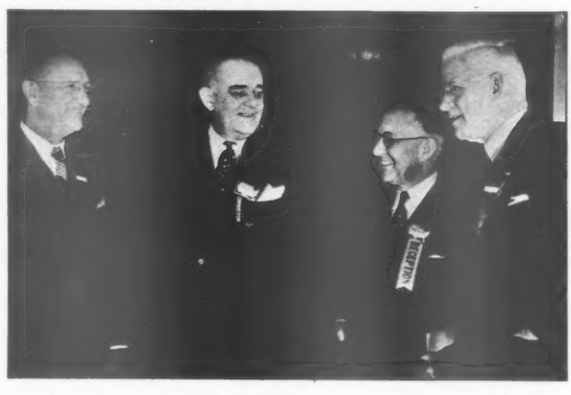
George A. Hill, Jr., president of the Houston Oil Co., in a forceful appeal asked that the members of the association accept the recommendations of the committees as they had been proposed in order that due deliberation might be given to the several problems and reports made later as suggested. Mr. Hill stressed the need for deferred action on these matters because of the lack of some data that was essential to the making of clear final recommendations. The resolutions were then adopted by unanimous consent.

### Officers Elected

The officers of the past year were renominated and elected: Charles F. Roeser, president, Fort Worth, Tex.; Harold B. Fell, executive vice president, Ardmore, Okla.; Russell B. Brown, general counsel, Washington, D. C.; T. J. Steuart, assistant to the president, Washington, D. C.; N. T. Gilbert, treasurer, Tulsa; C. E. Buchner, executive manager, Tulsa, and Charles Van Vleck, field manager, Tulsa.

## *CHAIRMAN THOMPSON'S COMMENT ON THE PRICE SITUATION*

The Interstate Oil Compact Commission and the regulatory commission in Texas do not deal with price. We have no authority over price, but we very decidedly are affected by those who fix prices, in that regulation is very difficult if you think you are running smoothly along, balancing production with consumption, and then have somebody cut the price on you. It makes enforcement very unpleasant and difficult. It has always been the feeling in this proration



*Clyde Pape, Tulsa (director); T. C. Johnson, Wichita, Kans. (director); Frank Hinderliter, Tulsa; Charles L. McMahon, Tulsa (vice president for eastern Oklahoma)*

thing, that a man would get paid for his forebearance, in other words, get more oil by preserving your bottom-hole pressure, but you wouldn't have any left, if we kept cutting the price.

The reason of the price cut was that there had been too much gasoline run into stills, ostensibly to get some heating oils. To get about 2,000,000 bbls. of heating oil you run 20,000,000 bbls. of gasoline, which made a very unhealthy gasoline situation, because gasoline would go down, which in turn will cut the price of crude—punish the boys who have been good, for the lack of business statesmanship among the refiners.

Why can't our state compact be extended so as to add the word "refining" to it? Take in the other states which have indicated they are ready to come in, then after we get them, we can study the refining problems, or rather the over-swinging industry of gasoline, just like we have studied the crude situation. I think it is reasonable to suppose the same sort of job can be done as has been done with production control. It can't do any harm. You can at least see if it wouldn't bring in flush refining like they do flush production.

Let us do as the president suggests, immediately get the states who are interested in oil production and refining to indicate their willingness to come into the

*(Continued on Page 56)*

# IOWA PLAN BLAMED FOR CRAZY MARKET

By T. F. Smiley

The dealer plan of operating service stations, a method adopted by large refiners to save their marketing divisions from being crushed under chain-store taxes, did the thing it primarily was designed to do, but it now faces the charge of having made a botch of its job otherwise and of engendering evils it was expected to prevent.

The plan, its proponents believed, in addition to accomplishing its chief objective, would not only stabilize the retail gasoline market, but the tankcar market as well, since it took the place of the old marginal contract, with its dealer discount, which had become a notorious breeder of price-cutting and unprofitable refinery operations. The plan functioned promisingly for a time. It performed no sleight-of-hand, but it went far toward establishing order at a moment when loss and wreck impended.

Today it is stabilizing nothing; and the gasoline market, from loading-rack to service-station pump, is economic litter. Retail prices present a picture of demoralization. Tankcar prices are so low that refiners are pocketing loss on every barrel of oil processed. Crude prices too are under pressure which in recent weeks has caused a general price reduction, without silencing the demand in some quarters for still lower postings.

### Disorganized Price Scene

This is taking place at a time when gasoline consumption is close to record levels, when crude inventories are at the lowest point in 17 years, and when general business conditions are steadily improving. In the disorganized price scene a crumbling retail gasoline market occupies the foreground. A marketing plan which was to have confined any fighting over retail gasoline prices to the service-station operators, allowing jobbers and refiners to assume the detached role of onlookers, has not only failed to perform this part of its job, but iniquitous conditions it fostered have spread to other divisions of the industry.

Then why isn't it ditched?

Three especially cogent reasons appear:-(1) It does protect the oil company from the ruinous chain-store tax. (2) It does save the company from having to include a network of filling stations in its already complicated social security accounts. (3) It does prevent these stations from adding to the thorny problems created by the new wage-hour law.

The situation in the gasoline market has become so inimical that the President of the United States has taken cognizance of it, and officers of the Western Petroleum Refiners Association arranged for a special meeting of Mid-Continent refiners Wednesday of this week in Fort Worth, Tex., to consider plans looking to correction of what is commonly referred to as a "terrible mess."

There is agreement that any course decided upon will have to include removal of one manifest weak spot now seen to be inherent in the dealer marketing plan.

What has happened? Why has a system of retail marketing launched under encouraging auspices and productive of definitely helpful results at first, come to be blamed for much of the demoralization existing in the oil industry?

The dealer marketing plan—or Iowa plan as it frequently is called because it originated in that state—came into being, it will be recalled, when the Iowa legislature in June, 1935, passed its confiscatory chain-store tax law, the most drastic measure of its kind on any state's statute-books. To prevent its business from being destroyed the Standard Oil Co. of Indiana, key marketing organization in Iowa, promptly leased its stations to independent dealers (most of them men who had been salaried station managers), thus placing these stations outside the prescription of the new tax law. Most stations of the Mid-Continent Petroleum Corp. and the Sinclair Refining Co. had been similarly leased when the law became operative July 1, 1935. Other companies joined in the movement to divorce service stations from their other activities.

Other states, avidly noting how Iowa had discovered a new source of taxation, passed chain-store tax laws too, with the result that the method of conducting service stations in Iowa was adopted generally. By early 1937 the old system of marginal contracts had been virtually scrapped. With minor exceptions the service stations of the large refining companies were now in the hands of dealers who leased them and ran them according to their own ideas. The dealer, instead of being on salary, was his own boss, and liked it. As to his ideas, some of them were good. And some weren't. For after all, this station manager, suddenly transformed from a salaried employe into a dealer in his own right, was not a trained business man and was likely to be blind to some of the pitfalls.

A theory embraced in the dealer marketing plan was that, besides avoiding a disastrous tax burden, the refiner would be rid of a mountain of administrative work, he could keep clear of retail price wars, he would have a more stabilized tankcar market, and as a result of more aggressive salesmanship by the dealer he would increase his own volume of business, since the dealer in virtually every case would continue to handle the same line of products as before. If there were to be any losses, they would be the dealer's own. If the dealer took it into his head to run a competitor out of business by underselling, that was the dealer's concern, not the company's. He could charge as much or as little as he pleased for washing and grease jobs. But surely he would see the dangers lurking along his pathway, dangers which he would have to deal with himself from now on, and he would be slow to take any action which might start costly price wars. It was an encouraging outlook, and each time a leasing agreement was signed the refining company experienced a sense of relief.

### But Plans Go Wrong

But things don't always turn out the way they are planned. They didn't in this case.

Among explanations offered for the failure of the dealer marketing plan, the one leading all the rest and revealing that the plan contained within itself the seeds of its own trouble, is that of profits added by service-station operators to the cost of the gasoline handled by them. Other reasons figure in the sorry market spectacle, but that of over-

reaching by the retailer is declared to overshadow all others.

The usual margin allowed the retailer when the dealer plan was put into effect was 3½ cents on each gallon of gasoline. There rapidly developed among the newly established dealers a feeling that this margin was not large enough. Under their lease agreements with the company they were free to make the pump price what they pleased. So why not make it more? The question fascinated them. They decided to make it more.

Local marketing associations were organized. Retail prices were moved up. The margin of 3½ cents was advanced to 4, 4½, even 5 cents. The public, realizing that after all, gasoline was about the cheapest thing in the family budget, cost of production considered, did little or no grumbling.

Then the trackside, or low-price, service-station operator, who had been a disturbing factor in the old marginal-contract days, increased his activities. Deciding, with reason, that there was a better field than ever for his operations, he established new stations and entered into livelier competition with the retailers operating under the dealer plan. As his business increased, that of his competitor fell off.

At this point entered a situation which has a touch of psychology in it. Gasoline marketers recognize that motorists may be divided roughly into two groups, those who pay little or no attention to cut-rate operations and patronize their regular station regardless of price wars, and those who refuse to pay 19 cents for a gallon of gasoline if they can get the same quality for 18 cents or less.

So gradually those in the second-named class turned to the trackside operators. When the falling off in patronage began to reduce receipts seriously the dealers adopted the simple expedient of raising their prices, knowing that a large proportion of their customers would stick anyway. Obviously, however, this was a process that would have to stop at some stage.

The oftener the motorist's eye fell on a cut-rate station's signs the more he began to wonder if he wasn't a fool for paying the higher price for his gasoline. Sometimes he decided he was. The cut-rate operator's business grew. His competitor's declined. The time came when the dealer under the Iowa plan could no longer raise his prices or even hold his posted ones. Various types of secret understandings came into being. A common one was for the dealer to charge a regular customer, not the price posted at the pump, but the one offered by the trackside operator. This was "between you and me."

Another way of holding patronage and getting a few new customers was to have supposedly ruling prices displayed at the pump, but to charge everybody something under that. For example the sign would say "19 cents" for regular-grade motor fuel. The motorist who bought 5 gallons and gave the station attendant a dollar bill received not 5 cents change, but 20 cents. If it was his first experience he would scan the coins and remark, "You've given me too much change."

"No," the attendant would smile. "That's what I'm charging you. Come again."

Sooner or later the dealers would have to reduce their prices openly, at the same time perhaps holding out secret discounts. They found themselves engaged in a finish fight with the trackside operators, no holds barred.

At this point the refiner, who had fondly dreamed he was through with retail price wars for the remainder of his natural life, found himself drawn into the fray. A dealer handling his products would quaver: "I'm at the end of my string. These price-cutters are taking all my business. Can you do anything about it?"

### Yes, He Could Do Something

Yes, the refiner could do something about it. Apparently he would have to or else lose one of his outlets. He could reduce the price to the dealer. And he did. The step was taken as an emergency measure, but these emergencies seemed to be immortal.

Discovering he was facing stiffened competition, the trackside dealer increased his search for cheap sources of supply. Soon the tankcar market was involved. Various developments were combining to push refinery prices to lower levels. The published tankcar price of regular-grade gasoline is a full cent less today than it was a year ago, and it is declared a buyer can find even lower quotations without incurring eyestrain.

The disorder was infectious. Murmurings arose among refiners that the cost of raw material was too high. They could not pay current crude oil prices and continue to do business. Plants began to close. The demand for lower crude prices became more insistent. A general reduction in crude postings set in.

Speaking before the recent annual meeting of the National Association of Petroleum Retailers in St. Louis, Mo., Leon A. Bosch, assistant professor of marketing and management at Northwestern University, Evanston, Ill., said: "A survey of posted prices after the dealer marketing plan went into effect revealed increased margins to the dealers. A study of tank-wagon and retail prices shows that the latter have not always followed reductions in tank-wagon prices. Margins in some instances of 70 per cent on gasoline, which is a staple item, are not consistent with sound business practice or community obligations. Customers begin buying outside the area, new competitors are attracted to the business, with the whole situation aggravated by motorists knowing that affiliates of some major companies sell gasoline identical with their branded output at less money. Some stations, in the interest of recovering, maintaining, or increasing volume, begin discounting. Others make reductions, and soon the retail price structure collapses. Signs come out, and 'They're off!' Once started, it is difficult to stop, and the road back to profitable margins is a long and difficult climb, with some operators never making the grade."

Numerous devices have contributed to the demoralized gasoline market. Though not growing directly out of the dealer marketing plan, some of them are related to it for the reason that the retail market was shattered as a result of the way the plan was operated, and the disrupted retail market imparted fresh impulse to price-cutting in associated divisions of the industry.

Mr. Bosch referred to one of these, that of a major company which has its own dealer outlets selling gasoline to one jobber, through a private arrangement, at a price below that which it receives from other jobbers. This jobber then sells to cut-rate station operators. The refiner presumably adopts this practice because he wants to share in the business done by trackside operators. An obvious result, however, is that he sometimes finds he is in competition with himself.

### Other Ways of Doing It

Cases are cited in which there is an apparently close relationship between a concern operating a fleet of taxicabs and another concern operating a bulk plant. The bulk plant, buying at tankcar prices, supplies the taxicab company with motor fuel at low rates and at the same time operates a string of cut-rate service stations.

Many of the trackside stations now have underground storage with a capacity of several thousand gallons. They buy at tankcar prices, and deliveries are made by truck. The truck owner gets his profit out of the price he receives for transportation.

The amazing overextension of service stations is pointed to as a major cause of chaotic marketing conditions and heavy losses. Some men in the industry declare oil companies would be in a far healthier state if earthquakes would swallow one-half the existing service stations.

And there must be mentioned in this connection the state of mind in which the Madison trials have left large oil companies. Small independent refiners find themselves with overheavy inventories. There are crude oil bills to be paid, payrolls to be met, and other demands for cash. There was a time when the large refiner was a life-saver at such a juncture. He would cut his own runs a little and take the distress material off the small refiner's hands, oftentimes not only because he wanted to help maintain a stabilized market but as a friendly act. He does it no longer, or if he does, he proceeds with the caution of a man who fears he may be accused of committing an illegal act. So the small refiner's distress gasoline usually is dumped on the market, where it is seized by bargain-hunting jobbers or brokers, who in turn dispose of it in the swirl of crazy competition set in motion under the dealer marketing plan.

The way out? It hasn't been found yet.

## *Novel Leases in Illinois*

Illinois fields are becoming known for occasional freak leases. A 16-foot-square burial lot is to have two wells drilled to two distinct pays. In another case wells are to be drilled 50 feet apart on a private roadway 1,320 feet long, traversing a lease owned by a competitive operator. These wells will be closely offset on two sides and as it is planned to drill twin wells each of which will be offset, there is a possibility of 174 wells being drilled on a space about 33 feet wide and 1,320 feet long, or a little more than one acre.

But the daddy of them all is the famous "Hell's Half Acre," which, in reality, was a quarter of an acre. About 1907 the late W. C. McBride leased a triangle a quarter-acre in size and drilled nine wells, penetrating two sands. These wells, some yet producing after 30 years, have poured out over 500,000 bbls. The lease is near Bridgeport in Lawrence County.

**The notable ILLINOIS BASIN SECTION starts opposite page 56 of this issue. Don't miss it!**

# Open New Fields on Frio-Vicksburg Line

By NEIL WILLIAMS

HOUSTON, Tex., Oct. 17.—Featured by discoveries along the so-called Frio-Vicksburg trend, new fields are being opened in Southwest Texas. Development of these fields, without regard to additional wildcatting that might be undertaken, is expected to forestall any material cessation of drilling activity in the district as a whole. Although there has been some slackening from the peak earlier this year, this has been more or less localized and is looked upon as temporary.

Exclusive of the Balcones Fault region, upwards of 30 fields have been opened in the district this year. Five were opened the past month. Five others were found during the preceding month, making 10, or about a third of the total, for the first nine months of the year.

Although a number of these fields may prove small in area with limited productive potentialities, indicated in several instances, some are of major importance, and open the way for extensive drilling possibilities. In at least one, a productive area of comparatively large extent has been proved.

### Now Chief Interest

Chief interest is being directed to exploration and development along the Frio-Vicksburg trend which takes a strip of territory closely paralleling on the coastward side the Government Wells-Laredo and Yequa trend of play, and extending 200 to 250 miles from Starr and Hidalgo counties on the extreme south, northward through Jim Hogg and Brooks counties, Jim Wells and Duval counties, Kleberg and Nueces counties, and portions of intervening counties as far as Victoria and Jackson counties from where it goes into the Gulf Coast district.

Frio-Vicksburg sands offer the greatest potentialities for development at this time, although shallower, as well as deeper horizons, stratigraphically, are productive at places, and present possibilities for further exploration. Until comparatively recently, exploration and development along this trend have been limited to a few areas, leaving much, especially in lower portions, practically virgin wildcat territory.

The Frio-Vicksburg section has come to the front in Southwest Texas only since discovery of the East Premont field, southern Jim Wells County, last December. Prior to the East Premont field, Frio-Vicksburg production had been found in a number of fields, but with few exceptions had been small or spotted, and generally confined to gas or distillate. The Vicksburg, from which the East Premont field is believed to be producing, had been exploited even less than the Frio, and no important production had been obtained from it.

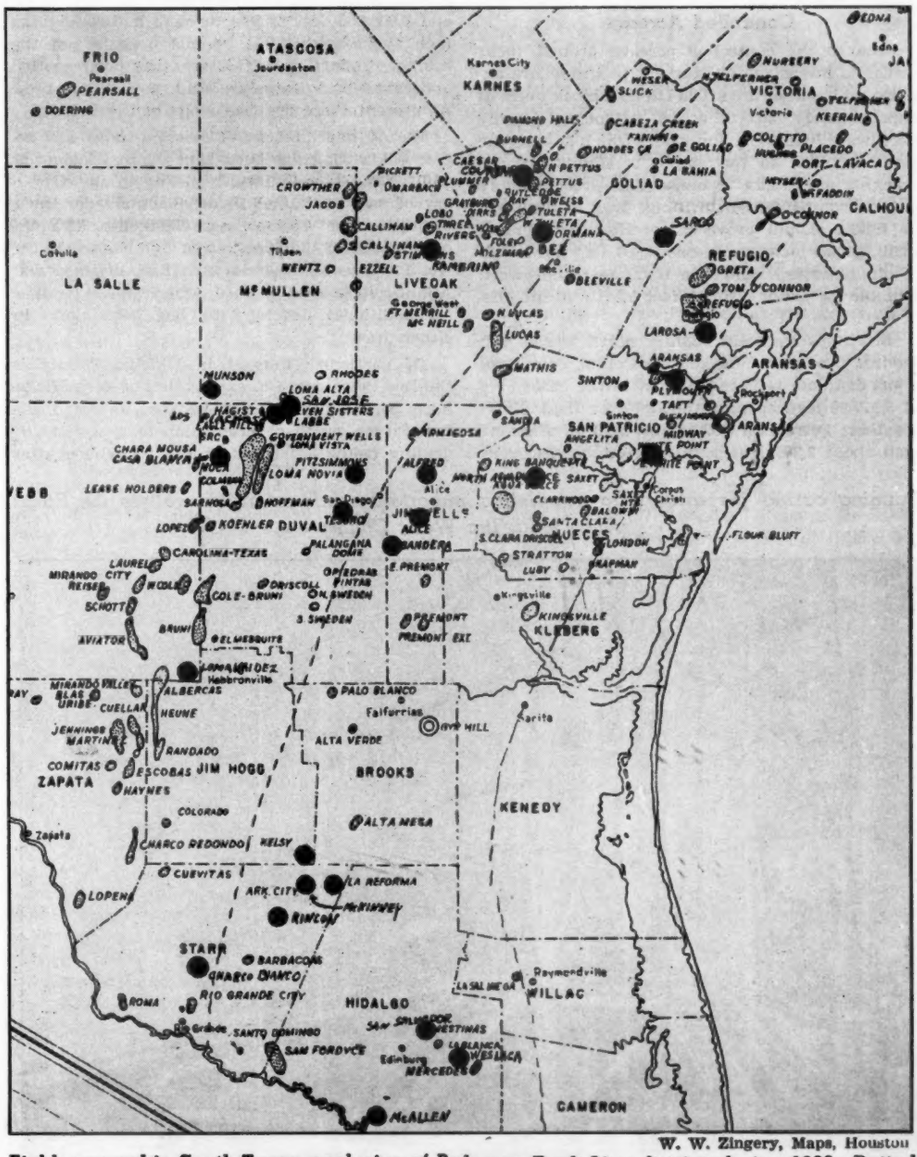
East Premont has given definite indication a field of large extent and one of South Texas' most important reserves. Completion by Magnolia Petroleum Co. of its discovery well, No. 7 Seeligson, which flowed initially at the rate of 1,400 bbls. of 37-gravity through a 96/64-inch choke, provided incentive for widespread leasing and wildcatting. The well had over 100 feet of sand section in which casing was perforated at 6,585-95 feet.

Due to the controlled acreage, development since has been limited to two additional wells, although a steady drilling program is under way, which may result in putting down a large number of wells. Drilling under way includes a step-out test by Transwestern Oil Corp. over 1½ miles southeast.

Exploration started following discovery of the East Premont field led to the opening in April of the Alice field, about 30 miles north, in the same county, where one of South Texas' most active drilling plays has been, and is taking place. Like East Premont, Alice is a field of large extent with a productive area already proved about 6 miles long and several miles wide. Its discovery has placed added importance to the Frio-Vicksburg horizon in South Texas. Here the main production is encountered at 5,300 feet. More than a dozen rigs are running in the immediate area.

Outside the Alice field, Jim Wells County has been, and remains a focal point of drilling activity with more than a half dozen wildcats. Magnolia Petroleum Co. is drilling its second test in the Bandera area, about 10 miles south of Alice, where last August it completed a gas well making 23,000,000 feet daily, with pressure of 3,525 pounds on tubing and 3,650 pounds on casing, from a Jackson sand at a total depth of 6,419 feet, 206 feet below the base of the Vicksburg. The second test is 1,126 feet east of the discovery.

The company also is drilling another deep wildcat test south of Ben Bolt, Jim Wells County, in the same general area where Humble Oil & Refining Co. is drilling a wildcat, No. 1 Belitz, which




W. W. Zingery, Maps, Houston

*Fields opened in South Texas, exclusive of Balcones Fault Line district, during 1938. Dotted line indicates approximate boundaries of Frio-Vicksburg trend*

has encountered a number of promising sands. North of Bentonville, same county, Humble has another deep wildcat test under way.

Discoveries in Jim Wells County this year include a new Pettus sand field, opened in February, near Alfred, in the north part of the county. Two additional wells have been drilled. Although this production is not large, and no additional drilling is under way, the area holds prospects of further development.

Within recent weeks two wildcat producers were completed almost simultaneously a little over 10 miles apart, one by Sun Oil Co. in northeastern Starr County, about 30 miles north of Rio Grande City, and one by Humble Oil & Refining Co. in the southeastern corner of Jim Hogg County, about a mile north of the Starr County line and 1,399 feet west of the Brooks County line.

As both wells are producing from approximately the same depth, and believed to be from corresponding sands, stratigraphically there is a chance they are in a common reservoir on a single, large structure. This would indicate a field of extensive proportions, the largest in the district. The sand section in each well lies near the Frio-Vicksburg contact, although it still is open to question whether it is basal Frio or upper Vicksburg.

### Controlled Acreage

Due to the controlled acreage around these wells, no intensive development programs are anticipated in either area. The Humble block takes in approximately 30,000 acres, extending largely northward, while the Sun block, which adjoins the Humble block to the south, is slightly larger. reaching more than 16 miles. This precludes any outside competition in drilling, even if the field. or fields, should prove large. However, Sun is drilling two more wells, one 3,800 feet northwest of its discovery, and one 6,400 feet southwest. Humble is drilling 3,732 feet north of its discovery.

Six miles east and slightly north of the Sun wildcat producer, Wheelock & Collins completed a gas distillate well last August in the basal Frio at 5,917-69 feet, opening the Reforma field. Since, Magnolia Petroleum Co. has brought in a second well about 2,300 feet southwest of the discovery from the same sand at 5,938-42 feet, continued steady development is assured.

At Rincon, about 12 miles southwest of the Sun new field, also in Starr County, is another field, opened in February by No. 3 Slick, also a gas-distillate well, was completed in sand at 4,142-59 feet, and although shallower, it is in the same general horizon. Although no additional drilling has been undertaken, the area is in line for early development.

Prospects of townsite development program are seen at McAllen, Hidalgo County, at the extreme south end of the trend, where Harding and associates last August completed in sand at 5,970-74 feet a gas-distillate well as another Frio-Vicksburg discovery. The well is at the east edge of the townsite. Drilling in the townsite has been delayed temporarily by city ordinance, but restrictions are expected to be lifted shortly. In the meantime, a second test is being drilled just outside the city limits.

Incentive for new development at Mercedes, an older Frio-Vicksburg field, in Hidalgo County, has been given with the late completion by Union Sulphur Co. of No. 11 American-Rio Grande Land & Irrigation Co., which proves a deeper sand in the Vicksburg below 8,800 feet. The well, at latest report, was flowing at the rate of 50 bbls. of oil and 6,000,000 feet of gas through a three-eighths inch choke with 1,950 pounds pressure on the tubing. Production in this area has been spotted and small, being largely of the gas-distillate type. At present there are five wells in the Frio.

Steady development of existing fields and active wildcatting has been kept up in Hidalgo, as well as in Starr County, resulting in the discovery of two additional fields, San Salvador, near Mestinas, and Weslaco, near Mercedes. The discovery well of the former was Gulf States Oil Co. No. 1 Cardenas. Discovery well of Weslaco was Atlantic Refining Co. No. 1 American-Rio Grande. No additional development has been done in either area.

Of particular interest in Hidalgo County is Phillips Petroleum Co. exploration of deep Vicksburg potentialities at Samfordyce. Its No. 1 Rafael Flores, north of production of that field, is drilling below 8,300 feet in the Vicksburg after encountering high-pressure gas sands. Main production of this field, opened in 1934, is from a Frio sand at 2,700 feet. The field was one of the first Frio fields in Southwest Texas.

With prospects of active development, the new LaRosa field, in Refugio County, at the upper end of the Frio-Vicksburg play, looms as an important field. It was opened last August by Coronado Exploration Co. (I. J. Allen) No. 2 Rooke, completed as a distillate well in a Frio sand at 5,400 feet, but since then the same operators have deepened a formerly abandoned shallower hole, 7,600 feet distant, to a sand at 5,950 feet, completing it as a good oil producer. Four additional tests are drilling.

Additional Frio-Vicksburg discoveries this year include the Sarco field, Goliad County, and East White Point, San Patricio County. The latter, opened in February by Plymouth Oil Co., which controls most of the average, has received fairly active development and now has 22 wells with a daily production of nearly 1,600 bbls. Production is at 5,660 feet. Four rigs are running. Sarco was opened in January by R. B. Swiger and associates No. 1 Wood, producing from the Vicksburg at 5,000 feet. It was a small pumper, and on additional drilling has been done.

Of the Cockfield-Yequa fields opened the past year, Fitzsimmons, in northeastern Duval County, has occasioned the most active drilling development, four to five rigs being kept running. Opened in May, this field has more than a dozen producing wells. The discovery well was H. J. Porter No. 1 Fitzsimmons. The Pettus sand also has been found productive. Although wells are not large, fairly consistent production is being obtained.

From five to six rigs also are kept busy in the Benavides and Sweden fields, about 20 miles southwest of the Fitzsimmons area, same county. Located many miles from the Cockfield sand fields, their discovery gave incentive for a leasing and wildcatting play along the Cockfield-Yequa trend, and for deeper drilling throughout that part of Texas, where previously little exploration had been undertaken below the Jackson.

This play has followed a strip of territory bordering and overlapping the Frio-Vicksburg trend on the westward, or inland side, and roughly paralleling the Government Wells-Laredo trend of fields further inland.

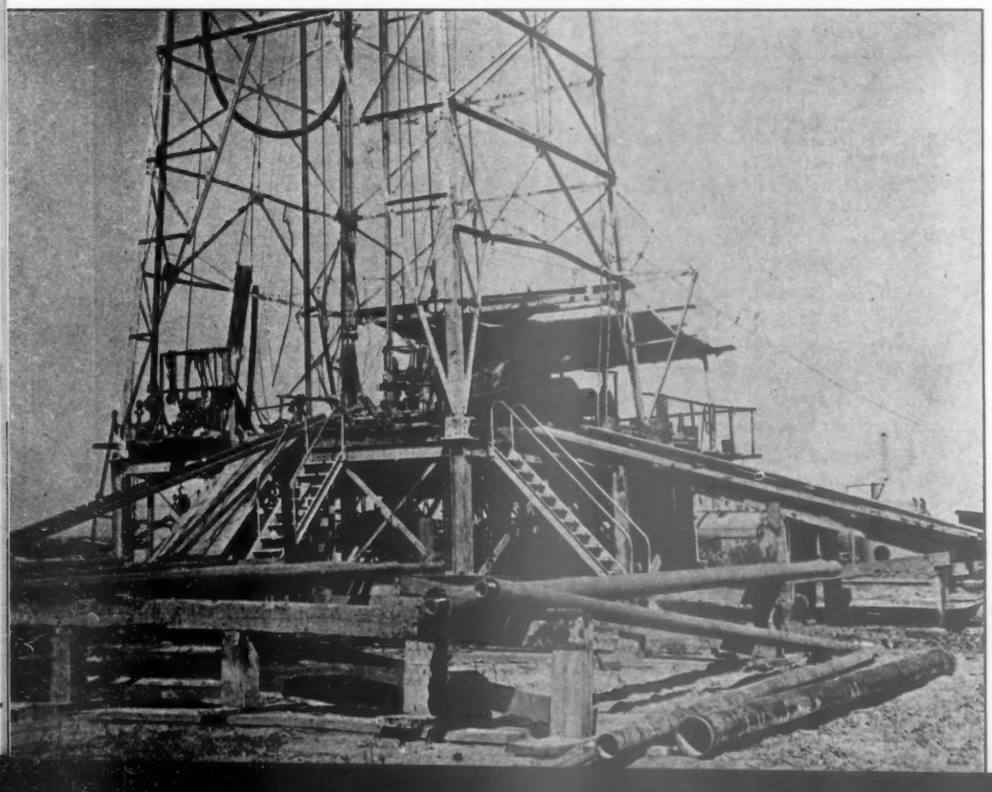
### Pettus Sand Field

Midway between the Fitzsimmons and Benavides fields, a new Pettus sand field was opened last June by Arkansas Fuel Oil Co. No. 1 Cuellar, flowing about 75 bbls. A second well has been completed, and one rig is kept running. The field has been designated as Tesoro.

Among additions to the Cockfield-Yequa list of fields this year are Ramerina, Live Oak County. and North Normanna and Courtney, Bee County. In the former, only a small gas well has been completed, Hantho-Nelson No. 1 McNeil. At North Normanna five wells have been drilled. No important production has been indicated. Courtney was opened by Atlantic Refining Co. No. 1 Courtney, pumping 3 bbls. per hour from the Pettus. No additional drilling has been done.

A development program is being carried on in the new Casa Blanca field, 2 miles northwest of Freer, Duval County. This is a Cole sand field along the Government Wells-Jackson trend with production around 1,200 feet. Opened in June by Magnolia Petroleum Co. No. 1 Duval, it now has 15 wells, with five rigs running. Other shallow fields opened as a result of exploration along the Jackson trend, and where development is under way, include Los Piachos, Duval County; Charco Blanco, Starr County; Loma Valdez, Webb County; Munson and Spica, McMullen County. The latter two have only recently been opened. Production has been small.

*Running casing preparatory to completing important south extension well to the South Alice field, Jim Wells County*



WICKERSHAM | STANLEY HEROLD | C. J. DEAN | VIC WILHELM | ERNEST K. PARKS | CARLTON BEAL

# Pacific Coast A.I.M.E. Papers Cover Wide Technical Range

By L. P. STOCKMAN

LOS ANGELES, Calif., Oct. 22.—The S. R. O. sign was almost hung out at the fall meeting of the American Institute of Mining and Metallurgical Engineers held in Los Angeles October 20. Harry P. Stolz was chairman of the morning session, and Ernest K. Parks chairman of the afternoon session.

J. Howard Marshall, a member of the stabilization committee of the Petroleum Division of the A.I.M.E. and a member of the committee on mineral resources of the American Bar Association, was the principal speaker at the evening session. Other guests and speakers included George B. Corless of Humble Oil Co., Houston, Texas, who attended as representative of President Jackling, Samuel Dolbear, past chairman of the Industrial Minerals Division, and Chester Naramore, assistant secretary of the institute.

### Seismic Prospecting

One of the highlights of the Petroleum Division was the prize winning student technical paper prepared by Messrs. Allen and Anderson of the University of California. The morning session was devoted to theoretical analyses of exploration, exploitation and reservoir conditions and the afternoon session to actual field work. Walter English, chief geologist of Superior Oil Co., assisted by Willard H. Tracy, Arthur Nomann, Frank Ittner and P. C. Kelly of the same company, presented a series of papers covering the theory of seismic prospecting. W. H. Geis, associate chairman of the Petroleum Division, presented a paper on "A Suggested Cause and Measure of Retrograde Condensation and Retrograde Vaporization" which precipitated some discussion when W. N. Lacey of the California Institute of Technology questioned some deductions. A paper on "Gravitational Concentration Gradients in Static Column of Hydrocarbon Fluids," prepared by B. H. Sage and W. N. Lacey of the California Institute of Technology was read by Mr. Sage. "Theoretical Reservoir Conditions With Respect to Physical Relationship of Oil and Gas," prepared by John F. Dodge, professor of petroleum engineering at University of Southern California, and Field Operation and Field Development," prepared by Stanley D. Herold, consultant, were well received. C. J. Dean, petroleum engineer of General Petroleum Corp., speaking on "Cementing for Multiple Zone Production," discussed conditions in the Wilmington field of Los Angeles.

Several California operators are removing derricks and other surface equipment in flush fields on the assumption that derricks lighter in construction but sufficiently strong for production operations, would ultimately be installed at completed wells. C. A. Yeatman of Shell Oil Co. indicated his company is following this procedure in the Ten Section field because it is anticipated the natural flowing life of the wells probably would be considerably more than two years.

Use of portable masts and pumping derricks has enjoyed popular usage for several years in connection with servicing operations on shallower wells and Mr. Yeatman pointed out portable masts are being used to hoist loads which approach the 8,000 feet of tubing found in all wells in the Ten Section field.

A. H. Bell, general superintendent of production of Continental Oil Co., spoke of the modern trend in drilling equipment. One operator, Superior Oil Co., is now having a 225-foot derrick developed for deep drilling. Preliminary time studies indicate that between a 136-foot derrick using 12- by 12-inch engine and 250-pound superheated steam and a 178-foot derrick using a 14- by 14-inch engine and a 350-pound superheated steam the saving in time running drill pipe at about 10,000 feet amounted to only 3.7 minutes per thousand feet coming out and 3.2 minutes per thousand feet going in. Assuming the maximum number of round trips that might be expected in drilling to 13,000 feet this affords a saving of only $3,500 per well for the tall derrick, which Mr. Bell does not believe justifies the additional cost. Greater speed in making round trips might be of inestimable value in a fishing job or a race to tap a competitive pool with large wells not restricted by proration. It has been found necessary to install an intermediate finger to support the 120-foot stands of 4½-inch and 5 9/16-inch drill pipe, but the 3½-inch drill pipe will not rack without damage and most operators are using only 90-foot stands for this size. This nullifies any time saving advantage of the tall derrick in round trip speed for this size of pipe. However, various possible remedies may solve this disadvantage.

Victor J. Beissinger, petroleum engineer of Richfield Oil Corp., presented a paper on "Current Practices in Drilling Procedure," stressing the importance of the human equation in drilling. He said W. J. Travers, Jr., and Karl Krieger, petroleum engineers of Richfield Oil Corp., had developed salient data regarding relation of speed, weight and circulation in drilling directional holes in Long Beach harbor. He said a left hand turn in the course of the hole was obtained most satisfactorily with relatively slow rotary speeds, 20 to 40 r.p.m. and two to four points of weight. A right hand turn, on the other hand, required increased speed of rotation, about 70 r.p.m., one to two points of weight on a conventional rock bit with a roller reamer above the bit and a short, 20-foot, drill collar above the reamer. To turn left from a previous right hand course, starting a rat-hole with a small four-way or pineapple drag bit was recommended with rotation speed cut down sharply and weight correspondingly increased. To turn right from a previous left hand course speed of rotation was increased and weight on the bit reduced.

### Core Analysis

A paper on "Core Analysis" prepared by Howard C. Pyle and John E. Sherborne of Union Oil Co. and read by Mr. Pyle covered core sampling and collection of well data, Handling samples in the laboratory in preparation for indiivdual tests, saturation, permeability, porosity, salinity, prediction of productivity were illustrated.

Sam Grinsfelder of Union Oil Co. presented a paper on "The Technique and Economics of Coring," which he said progress in the development of tools available for coring in rotary drilling has kept pace with the general advance in the technology of other phases of drilling and development. This paper brought out based on actual work in the Dominguez field, that drilling is 41 per cent faster than spot coring, 75 per cent faster than coring continuously with a wire line core barrel and more than twice as fast as coring continuously with a conventional core barrel, and in the Rosecrans field drilling is 86 per cent faster than spot coring, 135 per cent faster than wire line coring and five times as fast as conventional coring.

D. T. Hoenshell, petroleum engineer of Kettleman North Dome Association, cited interesting phases in connection with drilling in Kettleman North dome. In making tests either at the shoe of the water string or a formation test, Kenda stipulates that the tail piece, a perforated tubing, be run below all packers and that it be of drillable aluminum alloy so it may be drilled up if left in the hole. A pressure bomb chamber is always at-

tached to the bottom of the tail piece and in some instances bombs capable of recording 7,500 pounds have been used.

Ernest K. Parks of Standard Oil Co. is chairman of the southern California section, Petroleum Division, and Ezra B. Rider, vice chairman; G. A. Joslin, secretary-treasurer, and Harry P. Stolz, assistant secretary. The executive committee of the southern California section consists of Ernest K. Parks, Ezra B. Rider, Harry P. Stolz, Walter Abel, Roy P. McLaughlin, who is also a member of the national executive committee, John Herman and W. H. Geis, who is also associate chairman of the national division. N. W. Wickersham was chairman of the committee on arrangements and was assisted by R. R. Boyd of Richfield Oil Corp. and R. H. Pence, engineer in the oil umpire's office.

The fall meeting program committee consisted of Harry P. Stolz, chairman; R. W. French, Jr., W. H. Geis, W. S. W. Kew, R. P. McLaughlin, Floyd Merritt, Ernest K. Parks, F. G. Taves and Victor Wilhelm. National Secretary A. B. Parsons complimented the southern California section on the attendance and topics.

*Desaix B. Myers, Chester Naramore and Roy P. McLaughlin*

## SEISMOGRAPH FIELD OPERATIONS

*By Frank Ittner*

Efficient field direction, and types of equipment needed to meet transportation problems are considered to the extent that the desire to produce the best possible records must sometimes give way to the factor of cost. As in all engineering projects alternative possible methods of operation must be considered in the light of relative costs as well as of the quality of results obtained. Cost may be in the background of much that is done in the field operations, but only the effect on record quality is considered here. The precise depth at which to shoot in order to get optimum results is often a matter of experimentation for each individual hole. In general shale beds are preferable to sand opposite the charge. Shale usually transmits the shock to the surrounding rock more efficiently than soft sand so that a considerably smaller charge may be used in shale and this results in less ground roll. One also finds locations in which larger charges placed opposite sand formation give the better results. There appears to be a relation between type of wave emanating from the vicinity of the explosion and the frequency of the recorded reflections. To some extent the character of the shot may be judged by the sharpness of the sound of explosion. A sharp rifle-like crack from the explosion usually accompanies an efficient transmission of energy to the surrounding rock, and will give a good record of high reflection frequency. A dull booming explosion may indicate less energy transmission and a lower frequency of reflections. The character of the surface in the immediate vicinity of a geophone location may have a marked effect on the record. This is particularly noticeable where part of a spread is on hard ground and the balance on recently plowed and irrigated ground. Firm evenly consolidated soil is preferable to loose or sandy soil or swampy areas. However, in regions of surface caliche, sand-covered areas are preferred to bare caliche as the lesser of two evils. The practice of burying geophones in shallow holes approximately deep enough for the top of the geophones to be slightly below the ground surface is in part to reduce the noise. At the same time it is often found that better records are obtained with the geophones thus placed as compared to those placed directly on the surface, irrespective of the reduction in noise. Experiments with geophones on the surface and others directly below at the top of the unweathered zone show little similarity in appearance between the two locations. In some regions the deeper buried geophones give the better record, though the reverse is usually the case. In swampy areas of the Gulf Coast geophones have been attached to the tops of long stakes driven into the ground to reach a hard clay stratum. The question of using multiple geophones has led to the conclusion that the more geophones in a group the better, and as a matter of fact as many as 16 geophones have been used in a single group in attempting to cope with unusually difficult shooting areas. For most areas however experience has shown that four to a group is the point at which the law of diminishing returns sets the limit of good practice.

## MULTIPLE ZONE WELLS AND NEW CASING AND CEMENTING PRACTICES AS DEVELOPED IN THE WILMINGTON FIELD, CALIFORNIA

*By C. James Dean*

A multiple zone well is apparently a sufficient means to an end in the highly competitive portions of the Wilmington field which are being developed with a spacing of one well to an acre. Multiple zone completions would be considered bad practice for this field under a unit plan of operation or even if there was sufficient surface area to permit the completion of individual wells to each zone on the smaller leases. For example, if the same total number of wells, had been drilled to produce from three individual zones, the surface spacing would still be one well to the acre, but the resultant subsurface spacing would be one well to three acres. The economic balance may be that the individual zone wells cost less to drill and to produce, the ultimate recovery and the net value of the same will be greater for individual wells because of expected difficulties with multiple zone wells. These factors indicate that the net return and that the ratio of profit to investment will be greater for the program of wells to individual zones. The sealing of perforated intervals is commonly referred to as scabbing. One comparatively new practice is to pump cement through a port in the tubing between opposing swab rubbers approximately 2 feet apart. The tool is raised gradually as the cement is being displaced, forcing cement through all of the perforations. The process may be repeated until the perforations are completely sealed off. Another method of blanking off perforations is to insert a drillable sleeve which may be packed off above and below the perforations to be excluded. Cement may be placed behind the perforated casing and the sleeve if desired. Slots which are too large may be corrected by the insertion of a properly perforated drillable sleeve. Likewise bad casing may be supported and sealed by a blank sleeve. One important advantage possessed by drillable material for these uses is that if the results are not satisfactory, the sleeve may be drilled up and the well returned to its original condition. The conclusions drawn by the writer at the present stage of multiple zone completion practice are that individual zone wells in general are better practice than multiple zone wells although multiple zone completions have value in special cases. The division of a thick oil sand body, zone, or series of zones, into short producing intervals, is advantageous from the standpoint of ultimate recovery. The exploitation should be by individual zone wells in so far as economic practice permits.

## DETERMINING GEOLOGIC STRUCTURE FROM SEISMOGRAPH RECORDS

*By P. C. Kelly*

The processes involved in turning a set of seismograph records into a geological structure map may be divided into three classes. These are: (1) Picking reflections on the records, to be used for the computations; (2) determining the basis on which the computations should be made in order to arrive at correct results; (3) making the necessary computations and plotting sections and maps. The first is usually done by the crew party chief or at least checked by him. The computing system usually originates in the head office with occasional consultations with the party chief to provide modifications as necessary to meet special conditions. The computations and plotting are done by the party computer, with possibly one or two assistants if the calculations required are time consuming. According to Hooks Law there should be no effect on velocity from loading of a homogeneous elastis material, but according to the best data available it appears that Hooks Law is not even approximately true for sedimentary formations and for the pressure involved. For instance, limestone formations which have every appearance of being identical in character have several thousand feet per second higher velocity constant at a depth of a couple of miles as compared with close to the surface. The lower the position of a stratum in the stratigraphic column, the greater the amount of heat, pressure and time that have acted to consolidate the rock and increase its elastic moduli. Subsequent earth movements coupled with erosion of the surface of the ground may have acted to bring a stratum much nearer the surface than its depth of maximum burial but it should retain the greater part of the hardening effect of deep burial. Present depth is therefore not a direct function of the amount of hardening that a rock has been subjected to in its history subsequent to deposition. In any particular case it is difficult to determine with the data available what proportion of the increase in velocity downward is due to loading and what to stratigraphic position. It seems probable that each of these factors has a normal rate of increase downward with each different type of sediment, being different for sandstones as compared to shales or limestones.

## A SUGGESTED CAUSE AND MEASURE OF RETROGRADE CONDENSATION AND RETROGRADE VAPORIZATION

*By W. H. Geis*

Retrograde condensation has been defined as that which results from the reduction of pressure or that type of condensation whereby the dewpoint is reached by the reduction in pressure. The evidences of this action are numerous and it is unnecessary to point them out further or to prove the phenomenon as an active factor associated with oil and gas production. It has been termed retrograde because it operates opposite to the more familiar, and better understood type of condensation particularly with reference to pressure. Retrograde condensation might be viewed as an end result caused by the joint operation of several factors as is later explained. If under certain conditions the reduction of pressure promoted condensation then it was possibly the application of pressure which partially contributed to retrograde vaporization as the initial effect. The former, or the condensation, we can see at the surface, but the latter, the vaporization, appears to be distinctly the result of the original reservoir conditions and its causes are of importance to the petroleum engineer. A probable cause, as developed from certain known reactions of petroleum hydrocarbons is suggested and a measure, for retrograde condensation, attempted from analysis of the previous vaporization.

Retrograde vaporization precedes retrograde condensation and is stated to be a function of the reservoir conditions. The cause suggested involves the sol-

*(Continued on Page 227)*

# South Texas Geology Studied at Corpus Christi Meeting

By NEIL WILLIAMS

CORPUS CHRISTI, Tex., Oct. 22.—An outline and study of the stratigraphy and producing horizons of Jackson age and younger in South Texas featured the program of the tenth annual meeting of the South Texas section of the American Association of Petroleum Geologists at the Plaza Hotel, Corpus Christi, October 21 and 22. This was a sequel to the study of the Cretaceous formations presented at the previous annual meeting. Papers on other geological subjects were included, however.

The first day's program was devoted to the presentation of papers and discussions, the second day to a field trip taking in Aransas, San Patricio, and Nueces counties, with particular attention to gasoline plants. Attendance totaled more than 200. Abstracts of papers presented follow:

### CORRELATION OF THE MISSISSIPPI RIVER TERRACES WITH THE GULF COAST SHORE LINES

*By Dr. W. Armstrong Price*
*Corpus Christi*

Tracing and correlation of the terraces and other alluvial depositions being built up are expected to provide clues to the interpretation of conditions and characteristics of older depositions as they may be encountered. The Ingleside, or first low level terrace, has been traced along the entire Gulf Coast from Panaco, Mexico, to the Mississippi River, and provides a basis for study. That all low level terraces correlate is likely, although there is no definite conclusion. Attempts to correlate recent deposition conditions with those occurring since the glacial period are being made. For this it is hoped to find one continuous surface in some river which can be traced.

### CORRELATION OF SUBSURFACE AND SURFACE FORMATIONS IN TWO TYPE SECTIONS OF TEXAS GULF COAST

*By Alexander Deussen and Kenneth Dale Owen, Houston, Tex.*
*(Presented by Mr. Owen)*

Deeper drilling along the Gulf Coast has revealed enormous thicknesses of sedimentary deposits in which determination of markers and horizons presents many complexities and problems in respect to correlation of subsurface formations with corresponding formations as they appear on the surface, or higher up-dip. It always has been fairly easy to correlate along strike, but in attempting to correlate down-dip, or basinward, the problem has become increasingly difficult. Advancement in paleontology and micropaleontology, together with the development of electrical coring, has done much to clear up the situation. Paleontology and electrical coring have shown clearly how inaccurate, or incomplete, a study of a formation can be from a study of thin strata at the upper edge of the basin, or surface outcrop. The range of foraminifera varies greatly according to position. Down-dip, or basinward, a decided change takes place in the foraminifera as marine phases become more fully developed. As additional studies are made it is being found there is no need of following old nomenclature. Revision, or redefining of subsurface formations is needed in many instances. In the light of information being obtained, a "rebeginning" of stratigraphic work is being undertaken that will facilitate a better understanding of the lower, or basinward formations, and their correlation, or relationship, with their up-dip, or surface outcrop equivalents.

The paper dealt chiefly with the discrepancies that occur in definition of the Marginulina, Heterostegina and Discorbis, and the Vicksburg and Frio classifications.

*Herschel H. Cooper, president, Cooper-Frates, Inc., San Antonio; Kenneth Dale Owens, Houston, and Dr. W. Armstrong Price, Corpus Christi.*

*Worth W. McDonald, Arkansas Fuel Oil Co., San Antonio, vice president; W. A. Maley, Humble Oil & Refining Co., Corpus Christi, president; C. C. Miller, Texas Co., Corpus Christi, secretary-treasurer; Frith C. Owens, Conroe Drilling Co., program chairman, and L. W. Storm, Schlumberger Well Surveying Corp.*

*A. P. Allison, Sun Oil Co., Houston; T. W. Buzzo, Sun Oil Co., San Antonio, and Wayne Jones, Tide Water Oil Co., Houston.*

### PRODUCING ZONES IN SOUTH TEXAS IN THE VICKSBURG AND YOUNGER FORMATIONS

*By John M. Clayton*
*Humble Oil & Refining Co., Corpus Christi*

In the strip of coastal counties from Victoria and Calhoun counties to the Rio Grande, which takes in most of the fields of Vicksburg and younger production, are 50 fields, in which production to date has totaled 147,000,000 bbls. Due to the complex sand conditions in the Vicksburg and younger formations, and difficulties of identifying individual sands, the producing zones are classified by groups of sands, rather than separate sands. There are five general sand groups, each with various separate sands. These groups are Oakville, Catahoula, Greta (Heterostegina), Sinton, and Frio-Vicksburg. The latter group of sands is represented by such production as the Tomoconnor field, the 5,800-foot and lower sands at Saxet, East Premont, Alice, Samfordyce, LaRosa, and recent discoveries by Sun Oil Co. and Humble Oil & Refining Co. in Starr and Jim Hogg counties, respectively. The Frio-Vicksburg section shows enormous thickening down-dip. Identification and differentiation of sand horizons in this group present numerous complexities with sands occurring in the transitional phase between the non-marine Frio and the marine Vicksburg.

### PRODUCING ZONES IN SOUTH TEXAS IN THE JACKSON AND OLDER FORMATIONS

*By Herschel E. Cooper*
*President, Cooper-Frates, Inc., San Antonio*

Producing and potentially productive formations of South Texas are the most varied to be found in any district. Commercial production to date in Jackson and older formations (excludes Oligocene and Miocene sands of the coastal area) can be divided into six main groups, which, with the total production to August 31, and the year in which production of the respective group first was found are: Jackson, 124,448,000 bbls., 1921; Cockfield and Pettus, 20,710,000 bbls., 1930; Yegua, 3,370,000 bbls., 1926; Mount Selman, 17,700 bbls., 1929; Navarro-Taylor, 14,158,000 bbls., 1909-1918; serpentine, 18,177,000 bbls., 1915; Austin chalk Buda, 2,653,000 bbls. (exclusive of chalk production in Darst Creek field), 1924; Edwards, 151,015,000 bbls., (includes Darst Creek chalk production), 1922. Relative importance of Edwards group with Jackson and other horizons cannot be compared as much of Edwards production was obtained under open flow, unprorated conditions.

Oldest formations found are in the Edwards plateau, where drilling has been carried to the Cambrian. Exploration in the Edwards plateau is more difficult than in any other part of the district as that region is covered with from 800 to 1,300 feet of flat Cretaceous lime, in which structural conditions in lower formations are not reflected. No commercial production has been found, although two small wildcat

*(Continued on Page 52)*

# Federal Power Commission Sets Natural Gas Hearings

By HENRY D. RALPH

WASHINGTON, D. C., Oct. 24.—The Federal Power Commission is buckling down to its task of administering the new natural gas law, and has scheduled its first hearings under the act.

Cases already on file deal with rate protests filed by municipalities, a state utilities commission, and a local distributing company; applications to export gas; general investigations of the rate structures of entire systems; duties of a common carrier of natural gas; investigation and suspension of a proposed new rate schedule. Hearings on five export applications will be held in Washington November 7 and 8, and the hearing in the investigation and suspension case is scheduled for November 10.

The export applications to be heard November 7 and 8 involve the continuance of existing arrangements for exports to Mexico, but under the law the commission must approve all such by December 21, 1938. The companies involved are the United Gas Pipe Line Co. of Houston, exporting to Monterrey and Nuevo Laredo; El Paso Gas Co. exporting to Camanea and Juarez, and Texas Cities Gas Co. of Dallas exporting to Juarez.

The hearing November 10 will be on the first investigation and suspension case instituted by the commission. The Arkansas-Louisiana Gas Co. filed new schedules of rates and charges for the sale of gas to the Camden Gas Corp., Camden, Ark., to become effective October 31, 1938. On its own motion the commission suspended the effectiveness of the schedule until March 31, 1939, and ordered the company to assume the burden of proving the new schedule is just and reasonable. Later Camden Gas Corp. intervened to oppose the new schedule, declaring the proposed rates would greatly increase the cost of natural gas to it.

The common carrier case is probably unique since it concerns the Montana-Dakota Utilities Co. which maintains a pipe line in part over public lands and its right of way contract over the public domain requires that it be a common carrier of natural gas. Several producers of gas in the Baker-Glendive field in Fallon County, Montana, have complained that the company's charges for the transportation of gas produced by others than itself are so unreasonable that other producers are denied use of its facilities.

## Madison Case Cost Government $155,000, Department Says

CHICAGO, Oct. 24.—The cost of the Madison case to the Government was approximately $155,000, or about $50,000 per year, Wendell Berge, special assistant to Attorney General Cummings, told the National Oil Marketers Association during its meeting here today. In his address on "Making the Antitrust Laws Work," he said:

"The Government may win a suit, but through its victory there may develop a situation wherein the strict enforcement of the antitrust laws as they are leads to uneconomic results. The government representatives and the industry representatives may then both go to Congress with recommendations for specific amendment as applied to that particular industry. Perhaps government and industry may both agree as to what type of amendment is needed, or perhaps they may not agree, but in any event the light is focused on a problem needing legislative solution."

Referring to the temporary national economic committee (the monopoly committee), he said: "It would probably contribute to the solution of our economic problems if we were to have a permanent standing committee to be always available to consider with a view to legislative treatment those industrial problems which are not being adequately solved by existing law. The facts of each antitrust suit, where the suit does not seem to produce a sound solution of the economic problem attacked, could be thrown into this committee, either by the Government or by the parties defendant for objective consideration and such legislative treatment as may be found necessary. Thus, in effect, a suit would be tried both before the courts and Congress. An antitrust suit would become something more than just a contest for victory in the courts. It would become a guide to making the economic system work."

## Texas Producer Suggests Remedies for Situation

Editor, The Oil and Gas Journal:

The present deplorable condition of the oil business could easily have been avoided had the leaders in the various branches of this widespread industry taken note of the forewarning events which occurred during the past year. There is no consolation in "might-have-been." Since the situation is at hand, we need remedies, and not criticism.

To begin with, the present proration status should not be changed at this season of the year, nor the Saturday and Sunday shutdowns lifted. Keep the industry in check with supply and demand. We have it pretty well in hand at the present time. Even under these circumstances, on October 10, the supply was so great as to cause a reduction in price of 10 per cent and over. Lifting any bans or increasing proration would again throw us into the chaos of 1933.

A nationwide agreement between the oil-producing states, Texas, California, Oklahoma, Louisiana, Pennsylvania, Kansas, Illinois, and all other states which have oil resources, should be endeavored to be entered into, whereby each state should receive its pro rata according to the amount of oil each state is capable of producing, thereby showing no favoritism. A desperate effort should be made by the governors of these states to stabilize the market of this industry, which is the largest in the world, and belongs to the people of all the states, particularly the oil-producing states, as it reduces their taxes, preserves their natural resources, and leaves the coming generation with something besides an over-indebtedness caused by physical waste.

Another important feature of this plan should be the limitation of production on the first well in a new field; and upon the completion of more producing wells, said field should immediately be placed on a proration basis.

The independent operators blame the major companies for the critical condition of the industry. This is untrue—the fault belongs to all of us, and chiefly to the independent operators, for it is among them that the "hot" oil producers work.

Now, as to oil confiscated by the state, this should not, by any means, be permitted to be placed on the market and sold below the price of the same gravity oil produced by legitimate producers, but could be traded to some refiner in exchange for by-products to be used by the state at the market price.

Another great evil is the importation of oil, confiscated or otherwise. Such oil should not be permitted in competition with oil produced by people who have purchased their property, paid drilling and other development costs, without duty and tax being levied on it, putting it on a competitive basis. No oil, or its by-products, should be permitted to come into this country by pipe line, tanker, seagoing vessel, or other means of transportation, without the duty and tax being levied on it. All oil can be traced to its original sources without any great trouble.

This problem is not one that belongs entirely to the oil industry, but to the entire nation. The schools, the railroads, the laborers, farmers—all of the people—reap benefits from this industry, and should cooperate to the fullest extent in getting it stabilized and stopping physical waste of their natural resources. It is, therefore, to the benefit of all the people to insist upon something being done to conserve the world's greatest industry, oil.

N. F. WERTHEIMER,
T. W. M. Producing Co., Dallas, Tex.

## Ontario Crude Price Cut After Five Years of Stabilization

Crude oil prices in Ontario were reduced 20 cents per barrel by Imperial Oil, Ltd., effective October 25, The new prices are: Oil Springs, $1.97 per barrel, and Petrolia, $1.90 per barrel. It is the first change since September 9, 1933.

## Texas Supreme Court to Review Spacing Case

AUSTIN, Tex.—The Texas Supreme Court has agreed to review litigation involving the interpretation of the Railroad Commission's Rule 37 governing spacing of wells in the East Texas field.

*Third annual technical meeting of Bradford district research group at Pennsylvania State College. Discussion included water-flooding, curtailment, well-shooting, electrical models in water-flood study, effect of gas on water-flooding and selective plugging*

# The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

# Hyde Park Compact

It is encouraging to have the President of the United States expressing a wish for self-regulation of the oil industry and promising to press legislation to that end when it is presented to him.

His recognition of the need for cooperation in regulation of refining is clear but the suggestion that the Interstate Compact might be the vehicle is subject to certain practical difficulties.

The prime purpose of the compact is conservation of a natural resource through regulation of the production of crude oil.

Regulation of the manufacture of refined products from that crude is not primarily a matter of conservation but is necessary to stabilize an economic situation and protect small and non-integrated refiners from extinction.

There are a score of oil-producing states, but only six have joined the compact.

If it has been so difficult to enlist the bulk of the oil-producing states in the compact, what possibility is there of inducing the 28 states having actual operating refineries to enter it?

If approval of state legislatures will be required, as in the producing states, remedial action would be postponed indefinitely.

Putting aside the compact suggestion, is there some other method of approach?

The obstacle to solution of the problem through self-regulation within the industry is familiar.

Ten years ago, the Committee of Nine drafted, and the Minerals Section of the American Bar Association adopted, a proposed act of Congress stipulating that conservation agreements between oil producers with the approval of the Federal Oil Conservation Board be deemed not in violation of the antitrust laws.

Secretary of the Interior Work actively supported the measure but it was flatly rejected by Attorney General Mitchell.

This clash between departments of the government was repeated in the Madison case. The refining industry, believing it had the approval of the administration in continuing the cooperation permitted under the code, found itself indicted by the Department of Justice.

President Roosevelt told Chairman Thompson expansion of the compact to include refining was "just like a treaty—get the states lined up and I'll push it through."

The treaty really needed is between the Department of Justice and the industry.

Before self-regulation can be attempted there must be assurance by an act of Congress that such cooperation is within the law, so the industry will not stand in the shadow of civil or criminal prosecution for doing what the President has approved.

All that is required is an enactment permitting the industry, with approval of the secretary of the interior, to confer with the existing government agency, the Bureau of Mines, (which has rendered such signal service in its estimates on crude production), and thereby arrive, through voluntary cooperation, at a recommendation on manufacturing requirements.

The bureau would serve only as statistical consultant, suggesting refinery runs by areas.

Such permissive self-regulation, in which the public's interest would be safeguarded by government scrutiny and power to terminate it if misused, would go a long way toward solving the problem which the President and the industry alike believe demands immediate action.

We hope the Western Petroleum Refiners Association at its Fort Worth meeting will take the initiative in framing a treaty for the President to push through Congress.

# Programs and Meetings

## American Petroleum Institute Program for Chicago

The program for the annual meeting of the American Petroleum Institute at Chicago follows:

**Monday, November 14**

Committee meetings.

**Tuesday, November 15**

Committee meetings.
2:30 p.m. Board of directors.

**Wednesday, November 16**

10:30 a.m. Meeting of board of councillors to nominate candidates for board of directors.
12 noon. Board of directors luncheon.
2:30 p.m. General session.
Presentation of Accident-Prevention Certificate awards.
Report of board of councillors and election of directors.
President's address: Axtell J. Byles, American Petroleum Institute.
Address: Donald R. Richberg, Washington, D. C.

**Thursday, November 17**

9:30 a.m. Board of directors.
The executive committee will meet immediately following the session.
9:30 a.m. Division of Production.
Drilling and Production Practice: Presiding: C. E. Reistle, Jr., Humble Oil & Refining Co.
Papers under consideration by the program committee. Speakers will be announced later.
Care and Maintenance of Instruments Used in Drilling Operations.
The Suitability of Several Casing Steels for Field Welding.
Factors Influencing the Application of Pumping Units.
10:00 a.m. Division of Refining.
Miscellaneous topics: Presiding: Robert E. Wilson, Pan American Petroleum & Transport Co.
Antiknock and Mixture-Distribution Problem in the Multicylinder Engine, H. A. Blackwood, O. G. Lewis, and C. B. Tass, Standard Oil Development Co.
Control of Wax-Distillate Quality:
1. The Analytical Separation of Wax and Oil, E. A. Burch, Continental Oil Co.
2. Experimental Control of Slack-Wax Sweating, J. W. Donnell, University of Oklahoma, and E. A. Burch, Continental Oil Co.
3. Control of Lubricating-Oil Distillates by Vacuum Distillation, L. L. Davis and Anton Nelson, Continental Oil Co.
4. Survey of Oklahoma Wax Distillates, J. W. Donnell, University of Oklahoma.
Corrosion Protection of Refinery Equipment, J. A. Jamison, American Petroleum Institute.
10:00 a.m. Division of Marketing.
Marketing session.
Program is being arranged. Subjects and speakers will be announced in the final program.

**General Session**

2:30 p.m. General session.
Address: J. Howard Pew, Sun Oil Co.
Address: Gen. Hugh S. Johnson, Washington, D. C.

**Annual Dinner**

7:30 p.m. Annual dinner: A program of entertainment is being arranged.

**Friday, November 18**

9:30 a.m. Division of Production.
Production Practice: (Sponsored by the Central Committee on Drilling and Production Practice.) Presiding: D. L. Caldwell, Barnsdall Oil Co. Papers on the following subjects are now under consideration by the program committee. Speakers will be announced later.
Operating Cost of Multicylinder Gas Engines.
A.P.I. Pump Performance.
Liquid Capacity of Fluid-Operated Pumps.
Report of the division's nominating committee.
T. E. Swigart, Shell Petroleum Corp., chairman.
Election of 20 members of the General Committee of the Division of Production.
9:30 a.m. Division of Production.
Pipe Line Transportation Problems: (Sponsored by the Topical Committee on Pipe Line Technology of the Central Committee on Pipe Line Transportation.)
Presiding: Walter F. Rogers, Gulf Oil Corp.
Value of Soil Survey Methods, J. M. Pearson, Sun Pipe Line Co.
The Use of Rust-Hole Records to Study Pipe Service, Walter F. Rogers, Gulf Oil Corp.
Evaporation Losses of Petroleum Oils From Steel Tanks, C. C. Ashley, Shell Oil Co.
Calculation of Tank-Venting Requirements, Louis Bosa, Shand & Jurs Co.
10:00 a.m. Division of Refining.
Refining session.
Presiding: J. Bennett Hill, Sun Oil Co.
Revivification Characteristics of Bauxite Used in Percolation Filtration, R. H. Hubbell, Jr., and R. P. Ferguson, Attapulgus Clay Co.
Hydrocarbons in the Lubricant Fraction of Petroleum, Frederick D. Rossini, National Bureau of Standards.
Study of the Recovery of Oil From Spent Percolation Filters, C. M. Ridgway, L. M. Henderson, and W. B. Ross, Pure Oil Co.
Hydraulic Decoking of Coke Chambers, W. F. Court, Shell Petroleum Corp.
Report of division's nominating committee, H. F. Glair, Standard Oil Co. (Indiana), chairman.
Election of 20 members of the General Committee of the Division of Refining.
2:00 p.m. Division of Production.
Research.
(Sponsored by the Central Committee on Drilling and Production Practice.)
Presiding: E. G. Gaylord, Standard Oil Co. of California.
Papers on the following subjects are now under consideration by the program committee. Speakers will be announced later.
Partial Volumetric Behavior of the Lighter Hydrocarbons in the Liquid Phase.
Solubility Relations and Volumetric Behavior of Three Gravities of Crudes and Associated Gases.
The Nature and Importance of Surface Forces in the Production of Oil and Gas.
Subsurface Sampling.
(Note: Immediately folowing this group session, the Central Committee on Drilling and Production Practice will meet in this same room.)
2:00 p.m. Division of Refining.
Refining session.
Presiding: N. E. Loomis, Standard Oil Development Co.
The Determination of Yield Per Pass, Time of Treatment, and in Situ Densities, and Instrumentality for Their Control in Commercial Cracking Units, R. L. Rude, British American Oil Co., Ltd.; R. D. Judkins, Bailey Meter Co.; and C. Barnes, Toronto University.
Houdry Process:
1. Catalytic Cracking of Gas Oils for Production of High-Octane Motor Fuel and Aviation Gasoline.
2. Catalytic Cracking of Residual Oils for Production of Furnace Oil and Gasoline.
3. Catalytic Process for Treatment of Gasoline and Gas.
Continuous Coking of Residuum by the Delayed Coking Process, R. J. Diwoky, Standard Oil Co. (Indiana).

## Texas Mid-Continent Taxation Talks at General Sessions

DALLAS, Tex.—Final plans for the 1938 annual meeting of the Texas Mid-Continent Oil and Gas Association, to be held in San Antonio, October 27 and 28, were worked out here at a conference of President Charles P. McGaha with other association officials.

Mr. McGaha arrived from Wichita Falls to complete arrangements for the session, due to be the largest in association history, with George C. Gibbons, executive vice president, and Jake L. Hamon, former president. Due to the importance to the association as a whole of the speeches scheduled on taxation it was decided to make these available to the entire membership by scheduling them for the general sessions. A special tax session set tentatively for Friday afternoon, when the annual golf tournament would have conflicted, was called off and the speakers will address the membership at the Thursday and Friday business meetings. They include George H. Sheppard, state comptroller of public accounts of Texas, and Merritt H. Gibson, county-judge-elect of Gregg County, large Texas oil county.

## CALENDAR

**October.**

MID-CONTINENT OIL AND GAS ASSOCIATION, Texas Division, San Antonio, Oct. 27-29.

WESTERN PETROLEUM REFINERS ASSOCIATION, Washington-Youree Hotel, Shreveport, La., Oct. 28.

**November.**

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, regional meeting, Tucson, Ariz., Nov. 1-5.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, Pacific Section, Los Angeles, Nov. 3-4.

KANSAS-OKLAHOMA Division, Mid-Continent Oil and Gas Association, Tulsa, Nov. 4.

AMERICAN PETROLEUM INSTITUTE, annual meeting, Chicago, Stevens Hotel, Nov. 14-18.

**December.**

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, New York, Dec. 5-9.

**February, 1939.**

NATIONAL ASPHALT CONFERENCE, Los Angeles, Calif., week of February 27.

**March.**

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, annual meeting, Oklahoma City, Okla., March 22-24.

**April.**

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Hotel Cleveland, Cleveland, Ohio, April 13-14.

OIL-WORLD EXPOSITION, Houston, Tex., April 24-29.

# STATE CAPITALS

## KANSAS

*KANSAS CORPORATION COMMISSION* will meet on Thursday, October 27, to hear nominations for purchases of crude oil in Kansas during November, and later to fix the allowable production of the state for the month. On that day also the commission will grant a rehearing on the application of H. B. Garden and associates for a revision of production percentages made under a previous order.

*THE MARKET DEMAND FOR GAS* from wells within the Otis field of Rush and Barton counties and from wells in the Hugoton field of Finney, Kearney, Grant, Haskell, Morton, Stevens, and Seward counties will be determined, and quotas fixed for the month of November.

## TEXAS

*HEARING ON CLASSIFICATION OF WELLS* producing high gravity, high volatile liquids at high gas-oil ratios has been set by the Railroad Commission of Texas for November 14 at Austin. At that time methods of producing such wells in order to obtain the greatest ultimate yield from the reservoirs on which such wells are located, and the utilization and disposition of the gas produced from such wells will be discussed. All operators of wells producing liquids having gravities greater than 46 degrees A.P.I. and having gas-liquid ratios greater than 10,000 cubic feet per barrel have been asked by the commission to have the following information for each such well with them at the hearing: Producing depths; tubing size and length; casing size and length; choke size; tubing, casing and trap pressures; gravity of gas; gravity of oil or condensate; production of water, fluid and gas; gas-liquid ratio, and distillation of oil or condensate.

*HEARING ON THE CLEAR LAKE FIELD* of Harris County has been postponed until November 1 by the Railroad Commission due to the inability of certain operators to prepare detailed information by October 18, when the meeting was originally scheduled. At that time the commission will hear evidence for determining whether or not special rules, regulations or orders should be adopted for the conservation of oil and gas and the prevention of waste in the field.

*PERMIT TO WATER-FLOOD* a 40-acre lease in Wichita County, North Texas, was granted Bell Oil & Gas Co. last week by the Railroad Commission. The lease is the Powell tract in the C. Winters Survey and has nine wells producing from a depth of 250 to 553 feet. The company plans to pipe in water from the Red River and inject it into five of the wells at about 1,000 pounds pressure. If the experimental project is successful it is planned to interest other operators in the 300-acre field and water-flood the entire area.

*SATURDAY AND SUNDAY SHUTDOWNS* in Texas will be continued through November, the Railroad Commission ruled on Tuesday. There will be four Saturdays and four Sundays in November. The rule has been that where there are five Saturdays or five Sundays in a month, or both (as in this month), the fields are not shut in on those odd days.

*ALLOWABLE PRODUCTION* in Texas in November was set at 1,709,272 bbls. per day, but the omission of eight days will bring actual allowable down to 1,279,653 bbls. a day on the basis of full-time operation. The commission will reduce the holidays to one a week in December and there will be none at all in January if the commission's present plans are not changed.

## OKLAHOMA

*A GENERAL MEETING OF PRODUCERS AND PURCHASERS* of oil with the conservation officer of the Oklahoma Corporation Commission was held in Oklahoma City on Tuesday, October 25, to determine the demand for crude oil in November. Following the meeting William J. Armstrong began the work of allocating the production among the various fields of the state in the form of a recommendation to be presented to the Oklahoma Corporation Commission for its action, after which the commission will issue an order fixing the allowable production during the coming month.

## CALIFORNIA

*CONFRONTED WITH AN EXPECTED DECLINE* in offshore shipments and a resumption of substantial additions to stocks the Central Committee of California Oil Producers, official curtailment group, is faced with the necessity of substantially reducing the state's allowable crude oil production at the regular monthly meeting to be held in Los Angeles this week. The allotment for the past several months has been 610,000 bbls. per day with a tolerance of 5,000 bbls., but actual production has at no time come within striking distance of the objective. Fields in the San Joaquin Valley and in the coastal district are down to, or below, their aggregate allowable production, but fields in Los Angeles Basin have been averaging about 60,000 bbls. per day above the prescribed allotment. The chief offenders in Los Angeles Basin include the Dominguez, Huntington Beach, Long Beach, Montebello, Rosecrans, Santa Fe Springs, Torrance, and Wilmington fields with the remainder conforming fairly close to the allowable. Crude oil production of the state for the first three weeks of October is about equal to the production in the similar period in September, which indicates that the average daily production for the current month will be around 670,000 bbls.

The Central Committee, recognizing the difficult problem of Umpire Pemberton in allocating production to a lower allowable, and hoping that business conditions would improve to such extent that a reduction in production would not be necessary, has been very reluctant to reduce the state's allotment. General business conditions have not shown an appreciable increase on the Pacific Coast and any hope of increased fuel oil consumption is still problematical. Every indication points to a substantial decline in offshore shipments during the remainder of the year. Refined oil prices have been gradually slipping, and early in the past week Shell Oil Co. reduced the retail price of bulk sales of Diesel one-half cent per gallon and at the same time cut the price of stove oil 1½ cents per gallon on bulk deliveries.

## LOUISIANA

*A BIG REDUCTION* in daily allowable production in Louisiana in November is expected to be made by the Louisiana Department of Conservation according to advices received from Shreveport. The department's order is expected to be made public some time this week.

One usually well informed source said North Louisiana production, now set at 67,000 bbls. per day may be cut to 57,000 bbls., or thereabouts. The Rodessa field is said to be due to bear the greatest part of the burden of lessened production. The Lisbon field may be unchanged from 6,000 bbls. per day. Nothing has been heard of the commission's intentions regarding Cotton Valley. The South Louisiana or Gulf coastal fields are expected to be cut sufficiently to carry out the department's plans to reduce Louisiana's state allowable 40,000 bbls. a day in November.

*State Capitol, Frankfort, Kentucky*

# SOUTH TEXAS GEOLOGY

*(Continued from Page 47)*

producing wells have been completed this year, one in Kimble County, near Junction, and the other in Kendall County. Both are producing from the Ellenburger (Lower Ordovician). The Ellenburger, and several other formations, have potentialities.

The oldest formation so far drilled to show oil in the Balcones fault region is the Glen Rose (Lower Cretaceous), in which production has been found in Maverick and Frio counties. Along this fault production is obtained from the Edwards, chalk, serpentine (serpentine plugs), and Navarro-Taylor formations. Production of the Balcones fault district has totaled 186,000,000 bbls., with Old Luling, Darst Creek and Salt Flat the most conspicuous fields in the Edwards, Pearsall and Branyon in the chalk, Lytton Springs and Chapman in the serpentine, and Somerset in the Navarro-Taylor group. Pettus, Dirks and North Pettus have been the most productive of the Cockfield-Pettus sand group of fields, with Bruni townsite typical of the Yegua fields. Most important of the Jackson fields have been Government Wells, Loma Novia, Mirando City, Seven Sisters, Lopez, Aviator, and, most recently North Sweden. Due to the difficulty, from a paleontological standpoint, of working out positions of the numerous sands in the Jackson group of fields, the sands are referred to as producing zones rather than sands.

### SAXET OIL FIELD, NUECES COUNTY, TEXAS

***By John C. Poole***
*Barnsdall Oil Co.*

The field comprises two main divisions, separated by a fault, down-thrown on the south side. Production has been found in at least 28 separate sands, of which a half dozen have been more or less uniform and consistent, with 12 or 13 others having erratic characteristics, and the remainder more spotted. These are classified into five general groups, namely: The Lagarto-Oakville sands from 2,000 to 3,750 feet, the Catahoula sands from 3,750 to 4,800 feet, the Discorbis and Marginulina sands from 4,800 to 5,000 feet, the Heterostegina (Greta sand) sands from 5,000 to 5,500 feet, and Frio sands below 5,500 feet. High-pressure gas carried in the Lagarto-Oakville sands has been responsible for the worst blowouts. The major feature is the fault, definitely reflected in formations up to 2,000 feet. The vertical displacement shown in the 4,000-foot sand is 350 feet, while that in the 5,800-foot sand is 675 feet. Cross faulting is indicated in formations below 5,800 feet. On the downthrown side, formations are highest away from the fault, while on the upthrown side, formations are highest against the fault. There is a decided thickening of sections into the fault on the downthrown side. Faulting prior to Heterostegina deposition has had no effect on water levels; however, faulting since that deposition definitely has affected water levels. The majority of blowouts have occurred on the downthrown side of the fault. The 4,000-foot sand covers more area than any other sand in the field from a standpoint of consistent production. The 5,800-foot sand contour shows a maze of faults. In many instances, gas sands are recognized only by their salty taste. Only when distillate is present is there noticeable odor. Frequently, oil saturation is not indicated in cores, although the sands may produce on testing. Commercially productive sands may have been passed up in many instances, particularly in earlier development. Had the area been drilled on a unitized basis, development would have proved highly profitable.

### GENERAL DEVELOPMENTS IN SOUTH TEXAS DURING THE FIRST NINE MONTHS OF 1938

***By Stuart Mossom***
*Magnolia Petroleum Co., San Antonio*

During the first nine months of this year 380 wildcats were drilled in South Texas, resulting in the opening of 39 new producing areas: Edwards Plateau, 6 wildcats drilled, 2 discoveries; Cretaceous district (Balcones Fault), 85 wildcats drilled, 8 fields opened; Claiborne-Wilcox area, 37 wildcats drilled, no discoveries; Shallow Jackson trend (Laredo district), 115 wildcats drilled, 7 fields opened; deeper Jackson trend, 58 wildcats drilled, 4 fields opened; Frio-Vicksburg trend, 38 wildcats drilled, 9 fields opened; coastal area, 51 wildcats drilled, 9 fields opened. In proved fields, 1,629 wells were drilled with a total daily potential production of 242,000 bbls. Thirty-two new sands were opened.

| Field— | Wells drilled | Daily potential |
|---|---|---|
| Cretaceous area: | | |
| Old Luling | 56 | 4,400 |
| Branyon | 44 | 1,750 |
| Darst Creek | 31 | 2,400 |
| Salt Flat | 29 | 1,770 |
| Shallow Jackson: | | |
| Killam-Oilton | 98 | 6,000 |
| Hoffman | 97 | 12,000 |
| Seven Sisters | 43 | 4,500 |
| Ezzell | 39 | 2,800 |
| Deep Jackson: | | |
| North Sweden | 123 | 16,000 |
| Fitzsimmons | 9 | 2,800 |
| South Burnell | 13 | 1,300 |
| Frio-Vicksburg: | | |
| Alice | 36 | 3,700 |
| Samfordyce | 22 | 3,200 |
| Coastal: | | |
| Tomoconnor | 86 | 78,000 |
| Heyser | 83 | 13,000 |
| Luby | 75 | 9,000 |
| Saxet | 72 | 7,800 |
| West Saxet | 55 | 8,500 |
| Old Refugio | 43 | 7,500 |

### LATE CRETACEOUS AND TERTIARY EXTHRUSIVE VOLCANISM IN SOUTHWESTERN TRANS-PECOS, TEXAS

***By Vaughn C. Maley***
*Humble Oil & Refining Co., Midland*

Extrusive volcanic rocks of the area are chiefly confined to Presidio, western Brewster, Jeff Davis, and adjacent portions of Pecos, Reeves, Culbertson and Hudspeth counties. History of the formation, which has a total thickness in excess of 5,000 feet, has been relatively long, extending from late Cretaceous to near the close of Tertiary, or possibly into the Quaternary period. The epeirogenic disturbances which closed the Cretaceous period were accompanied by volcanic eruptions, mostly of ash, blown or washed into the remnants of the Cretaceous sea, the Chisos syncline and the San Carlos basin. In these basins deposition was apparently continuous from the Cretaceous Aguja (Navarro) through the Tornillo into the Tertiary volcanics. The major part of the volcanic sediments was formed during Eocene and possibly Oligocene time. During Eocene time there was much activity of the "explosive" type, resulting in the ejection of pyroclastics, and it is probable most of the lava which followed the eruption of the pyroclastics is Oligocene. During Miocene, or early Pliocene, it is believed, orogenic movements resulting in extensive block faulting and folding occurred, and it was at that time the major structural and topographical features of the region were formed. In Jeff Davis County at the north end of the area the volcanic series is predominantly lava.

A pronounced unconformity separates the volcanic series from the underlying beds. This series has been found to rest on older rocks. In some places it rests on the middle or upper Taylor, in western Brewster County it is in contact with the Boguillas, with successively younger formations coming in toward the Chisos syncline, and at various places it overlaps the Georgetown, Fredericksburg, Trinity or Permian Chinati series. Structural movements which brought the Cretaceous period to a close were epeirogenic and orogenic. The sediments were extensively folded, faulted, and eroded previous to deposition of the Tertiary volcanic series. Also, in late Tertiary time, the volcanic series was involved in widespread orogenic movements, extensively folded and faulted. Big Bend syncline is a consequence of these movements. Many instances of dikes cutting the extrusive series are known, and at several places large plugs have formed prominent domes in the lava and ash beds. That some of these larger intrusions reached the surface and added to the eruptives is not improbable.

## Kansas-Oklahoma Division To Meet November 3

The annual membership meeting of the Kansas-Oklahoma Division, Mid-Continent Oil and Gas Association, will be held at 2 p.m. Thursday, November 3, at the Tulsa Building, Tulsa. The annual meeting of the executive committee will convene immediately after the adjournment of the membership meeting.

Both meetings will be confined strictly to association business. The work of the Kansas-Oklahoma Division is constantly enlarging, and a multiplicity of committees and subcommittees have been working throughout the year on matters of importance. These activities will necessitate review so that the program and policies for the ensuing fiscal year may be determined.

Many members have been added this year, and it is urged that as many as possible attend, as officers and executive committee for the coming year are selected.

## Gasoline Conspiracy Charge In Wisconsin Suit

ST. PAUL, Minn.—Clark Oil Co. and Plymouth Clark Oil Co. have begun suit in the Federal District Court here charging conspiracy to fix wholesale gasoline prices. The plaintiffs, Wisconsin jobbers, ask $435,585.26 from Phillips Petroleum Co. They assert that increased prices reduced their profit by 2 cents. Seven other oil companies and two trade publications were named as alleged conspirators but were not made defendants in this case.

*George C. Gibbons, executive vice president; Charles P. McGaha, president, and Jake L. Hamon, former president, Texas Mid-Continent Oil & Gas Association, completing plans for annual meeting at San Antonio, October 27-28*

# INTERNATIONAL NEWS

## New High Gravity Oil Field Discovered in Venezuela

A new high gravity oil producing field was discovered October 12 by Standard Oil Co. of Venezuela, 25 miles southwest of the Quiriquire field in eastern Venezuela.

The strike was made in Standard of Venezuela No. 1 Jusepin which flowed 768 bbls. of 32.3 degrees A.P.I. gravity crude in 24 hours through a half-inch choke. The well was drilled originally to total depth of 5,050 feet and was plugged back later to 4,920 feet. Nine and five-eighths inch casing was set at 4,855 feet, leaving the interval from that point to the plugged back depth of 4,920 feet open to production test.

The discovery is about 12 to 15 miles north of No. 1 El Lirial drilled several months ago by Standard of Venezuela on Pantepec acreage. The well is about 20 miles almost due west of Maturin where Standard of Venezuela drilled a failure last year to the basement deposits.

In the Temblador area, in the southern part of the eastern Venezuela basin, Standard of Venezuela is starting the first of 14 obligatory wells required under its contract for a half interest in Pantepec acreage consummated a few months ago after the primary term involving six wells for a quarter interest expired. The test, which will launch the 14-well program, is designated as No. 1 T.R. and is 600 meters east of Mene Grande Oil Co. No. 13 Hato which was completed recently for 200 bbls. per day extending the Temblador producing field a considerable distance to the east.

Work is again under way in Venezuela on the Mene Grande road from Oficina to the port of Guanta, a preliminary step to the construction of the company's trunk pipe line between those two points. Work was suspended during the middle of the summer for several weeks.

## Alcohol-Blend Expanded By New Japanese Order

A gradual expansion of the enforced blending of alcohol with motor fuel in Japan is contemplated in orders recently issued by the Ministry of Commerce and Industry to become effective January 1, 1939. Up to the present time this measure has been enforced only in Tokyo and Kanagawa Prefecture, where all gasoline sold on the open market consists of 10 per cent alcohol to 90 per cent gasoline.

There will be three increases in the distribution of this mixture. During the period from January 1, 1939, through March 31, an average of 25 per cent of all gasoline used in Japan proper will be blended with alcohol. During the second period, which extends through June 30, 1939, this average will be increased to 50 per cent or more. By the second half of the year, it is expected that at least 70 per cent of the total will be blended. No increase in the ratio of alcohol to gasoline, that is, 10 to 90 per cent, appears to be contemplated, according to interpretation of the official notices.

## Gulf Exploration British Test Abandoned at 5,600 Feet

Gulf Oil Exploration (Great Britain), Ltd., has abandoned its first test in England, near Penshurst, Kent, after drilling to approximately 5,600 feet. It is the second deepest test drilled in England to date, being exceeded by D'Arcy Exploration Co. No. 1 Portsdown which was carried to 6,550 feet without obtaining indications of oil production.

Failure of the test drilling at Portsdown and Penshurst has virtually eliminated the English south coast as a prospect for opening petroleum production. Government and individual company geologists have long regarded this portion of England as the most likely oil territory. Another test is understood proposed in the near future in Dorsetshire. In the main, however, interest in English prospects for petroleum production have shifted to the southwest of Portsdown, Penshurst and Dorsetshire section.

Since the early part of 1936 there have been 14 deep tests for oil drilled or started in Great Britain in addition to an equal number of shallow core, or geological exploratory tests, none of which was carried below 1,000 feet.

The most favorable prospect so far is Anglo-American Oil Co. No. 1 Midlothian in Scotland which has produced a small amount of oil above its present drilling and testing depth of 3,857 feet.

## Venezuela Daily Average Shows Gain in September

Crude oil production in Venezuela in September is estimated at 16,172,363 bbls., a daily average of 539,080 bbls. Due to the fact that September is a 30-day month, total output dropped slightly below the estimated output of 16,434,418 bbls. in August, but this figure is a daily average of 530,142 bbls. Thus the daily average output in September was higher than in August by 8,938 bbls. In September, 1937, Venezuela production totaled 17,422,361 bbls., a daily average of 580,746 bbls., which made it one of the most active producing months in the history of the country.

The decline in Lagunillas field production was checked in September, the output of 6,589,515 bbls. comparing with 6,550,962 bbls. in August, but yield was down 1,640,395 bbls. from the rate prevailing a year ago. The Mene Grande field production dipped below 1,000,000 bbls. last month and averaged 30,162 bbls. per day for September, compared to 34,837 bbls. per day in August.

The other outstanding feature in September production records is the new Bachaquero area, which made its first appearance in the list of shipping fields in August. Yield of 90,290 bbls. last month was almost double the August output. The field is being developed by Venezuela Oil Concessions, Ltd., subsidiary of the Royal Dutch-Shell group. Production from the new Temblador field in eastern Venezuela totaled 214,264 bbls. in September, a slight decline from 247,239 bbls. in August.

Venezuela Oil Concessions is producing nearly 1,000,000 bbls. per month more at present than at the same time a year ago, probably indicating the replacement of supplies previously obtained from Mexico, where another Shell subsidiary, Mexican Eagle, was included in the list of companies from which the government confiscated petroleum properties. Production details follow:

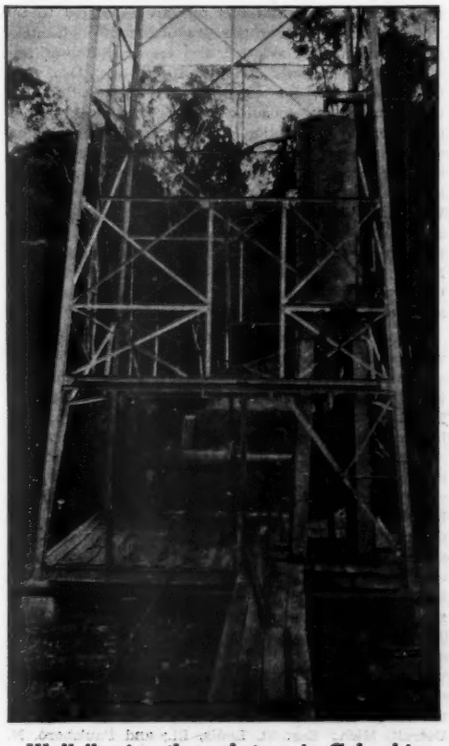
**VENEZUELA CRUDE PRODUCTION**

**By Fields**

| | Sept. 1938 | Sept. 1937 | Dly. av. Sept. 1938 |
|---|---|---|---|
| Lagunillas | 6,589,515 | 8,229,910 | 219,651 |
| La Rosa | 2,676,428 | 2,086,657 | 89,214 |
| Tia Juana | 2,627,384 | 2,613,327 | 87,580 |
| Quiriquire | 2,011,223 | 2,187,646 | 67,041 |
| Mene Grande | 904,858 | 1,400,201 | 30,162 |
| Tarra | 495,985 | 400,780 | 16,533 |
| Temblador | 214,264 | ..... | 7,142 |
| Cumarebo | 203,138 | 203,208 | 6,771 |
| Pedernales | 168,610 | 151,586 | 5,620 |
| Lapaz | 63,611 | 10,548 | 2,121 |
| Concepcion | 73,387 | 85,608 | 2,446 |
| El Mene | 53,670 | 52,890 | 1,789 |
| Bachaquero | 90,290 | ..... | 3,010 |
| Total | 16,172,363 | 17,422,361 | 539,080 |
| Daily av., Sept. 1937 | | 580,746 | |
| Total Aug. 1938 | | 16,434,418 | |
| Daily av. Aug. 1938 | | 530,142 | |

**By Companies**

| | | | |
|---|---|---|---|
| Lago Pet. Corp. | 4,304,638 | 5,729,950 | 143,488 |
| Venezuela Oil Con. | 5,625,583 | 4,753,477 | 187,520 |
| Stand. of Venezuela | 2,702,455 | 2,900,261 | 90,082 |
| Mene Grande Oil Co. | 2,034,390 | 2,134,000 | 67,813 |
| Caribbean Pet. Co. | 904,858 | 1,400,201 | 30,162 |
| Colon Dev. Co. | 495,985 | 400,780 | 16,533 |
| British Controlled | 53,670 | 52,890 | 1,789 |
| No. Venezuela Pet. | 50,784 | 50,802 | 1,693 |
| Total | 16,172,363 | 17,422,361 | 539,080 |



*Well flowing through trap in Colombia*

## Gulf Subsidiary to Begin Survey of Danish Area

As the first step in Danish exploration to be carried out by the Danish-American Prospecting Co., which is controlled by Gulf Oil Corp., a general gravimetric survey is to be made. Equipment and personnel to carry out this survey have been transferred to Denmark. The Danish Government has granted a 50-year concession.

C. W. Hamilton of the New York production division, Gulf Oil Corp., is president of the Danish-American company. Guy Stevens is vice president and resident manager of the company. E. S. Bleecker, geologist; C. Woessmer, petroleum engineer, and C. S. T. Folsom are the directors.

## Czechoslovakian Output Increases 10 Per Cent

Production of crude oil in Czechoslovakia during August, 1938, amounted to 1,609 metric tons, or an increase of 5.8 per cent as compared with 1,521 metric tons in July and a gain of 8.8 per cent as against 1,479 metric tons in August, 1937.

Cumulative figures for the period from January through August, 1938, show an increase of 10.1 per cent in crude production as against the same period of the previous year, the total output of crude amounting to 12,701 metric tons and 11,537 metric tons, respectively, during the first eight months of 1938 and 1937.

# Pipe Line Activity

### Contracts Let for Welding Lines in Several States

H. C. Price Co. of Bartlesville, Okla., announces that it has been awarded contracts for electric welding and has started construction on the following pipe lines:

From S. D. Bechtel Co., 140 miles of 8-inch for Continental Oil Co. in Wyoming.

From I. C. Little, gathering lines for Carter Oil Co. in Illinois.

From White Deer Pipe Line Construction Co., 10 miles of 8-inch for Illinois Pipe Line Co. in Illinois.

From J. J. Connor Construction Co., 35 miles of 16-inch for the Northern Natural Gas Co. in Iowa and Minnesota.

From Williams Brothers Corp., 73 miles of 8-inch and 10-inch for Central States Pipe Line Co. in Illinois.

From S. D. Bechtel Co., 53 miles of 18-inch for Mountain Fuel Supply Co. in Wyoming and Utah.

All lines are to be electric welded using the Fleetweld process.

### Louisiana Pipe Line Begins Transporting Crude

HOUSTON, Tex.—Republic Production Co. has begun moving oil through its recently completed 18-mile 6-inch welded oil line from the Bancroft field in Beauregard Parish, coastal Louisiana, to the Texas Pipe Line Co.'s Bunkie Hill pump station on the Texas side of the Sabine River. The line was laid by Latex Construction Co. of Houston.

### United Co. Line to Houston Is Nearing Completion

HOUSTON, Tex.—United Gas Pipe Line Co. 47-mile combination 8-, 10-, 12- and 16-inch gas line, from the Katy field in Waller County to the outskirts of Houston, is nearing completion as approximately 22 miles have been laid. With the exception of the 16-inch pipe, the line is welded.

### General Petroleum Lays Gathering Line From Rio Bravo Field

LOS ANGELES, Calif.—To handle increased production in the Rio Bravo field of Kern County, General Petroleum Corp. has found it advisable to lay 13 miles of gathering line to connect with its main trunk from

*Bend in Rio Bravo line*

San Joaquin Valley to Torrance refinery and tidewater in Los Angeles Basin. The line was laid by the Lang Co. under the supervision of General Petroleum Corp. Mountain Division superintendent, R. R. Dafoe and his assistant, H. T. Williams, under direction of E. L. Adams, manager of pipe lines. This line, which extends from the company's Rio Bravo tank farm to Kern pump station on the main trunk, consisted of 13 miles of 6⅝-inch O.D. electric resistant welded steel line pipe manufactured by Youngstown Sheet & Tube Co. The line was completed and ready for use 10 days after the first pipe was on the ground and Rio Bravo crude went through the new lateral on the eleventh day. A motor driven Gaso pump was installed to move the crude through the line to Kern station.

A complete analysis of the soil was made to determine its corrosiveness and, based on these findings, Somastic pipe treatment was selected for use over the entire line as General Petroleum Corp. has had considerable experience with this coating. While the principal purpose of the coating is protection against corrosive agents in the soil it cuts the weight of the pipe approximately one-fifth. The standard weight of 6⅝-inch pipe to be laid without coating is 19 pounds per foot. In this case, 6⅝-inch O.D. pipe weighing 14.96 pounds per foot was delivered to the Watson plant of Industrial Engineering Co. where the half-inch layer of Somastic coating was applied and hauled by trucks 140 miles to the right of way. Unusual conditions complicated the laying of the line because it was irrigation time in the cotton fields and they had to be irrigated every four days. This meant the irrigation schedule for each field had to be determined and work completed within the four days allowed. Over main irrigation ditches the line had to follow a hedge-hopping course, coming out of the ground and being supported across the ditch and then diving under ground again on the other side. J. L. Martin, general pipe line superintendent, and Frank Posey, pipe line engineer, spent a busy period during construction work.

# Refinery Expansion

## Two Refineries to Build Houdry Units Costing $35,000,000

PHILADELPHIA.—Sun Oil Co. and Socony-Vacuum have entered into a program calling for the expenditure of $11,000,000 and $24,000,000, respectively, for construction of units to be used in connection with the Houdry processes in oil refining whereby crude petroleum, gas oil and fuel oils are subjected to the catalysts for the production of high octane gasoline.

Announcement of the new units was made yesterday by Houdry Process Corp. E. B. Badger & Sons Co., of Boston, is to become licensing agent.

Both programs are now under way and call for completion by the first half of 1939, although some units will be completed before that date. Sun is building two large units and the Socony-Vacuum eight units.

The processes include operations whereby crude petroleum, gas oil and fuel oils are subjected to the action of catalysts for the production of high-octane gasoline including aviation and transposition of fuel oils into heating oils and into Diesel oils. Also, catalytic operations for the chemical stabilization and treatment of raw gasoline and the polymerization of gases for the production of exceptionally high octane aviation base stocks. These processes have been brought to commercial status within the United States in cooperation with the Sun Oil Co. and the Socony-Vacuum. Two plants are in operation in the United States, one at the Socony-Vacuum's refinery at Paulsboro and the other at the Sun Oil Co. refinery at Marcus Hook, Pa. The Sun Oil Co. has under construction two large units and the Socony-Vacuum eight additional units.

The Houdry Process Corp. claim that the process will result in material increases in the amount of gasoline recoverable from a barrel of crude and that it is the only process available today which, after removal of straightrun gasoline is capable of producing, without hydrogenation or the addition of any non-petroleum product, a gasoline having an octane number in the neighborhood of 80. The ability of the process to eliminate or control as desired the quantity of heavy fuel oil from crude oil has important economic features linked with conservation of crude oil as a natural resource. It is further claimed that these processes will enable the refiner to maintain a greatly improved economic balance between the seasonal demand for domestic heating oils, gasoline and fuel oil. The Houdry Process Corp. stated that it is at present actively negotiating licenses to a number of refiners within the United States. The units under construction by Socony-Vacuum are located at Beaumont, Tex. (two); Brooklyn, N. Y.; Buffalo, N. Y.; Augusta, Kans.; Detroit, Mich.; East St. Louis, Ill.; and Paulsboro, N. J. In addition to the two plants operating in the United States, a Houdry unit is on stream in Naples, Italy, producing aviation gasoline.

### Humble Refinery Starts $1,000,000 Plant

Construction has started at the Baytown Humble Refinery on a $1,000,000 phenol plant. The Kellogg Construction Co. holds the contract for the unit which will be completed in about five months.

A small crew is now engaged in preliminary construction work; 100 men will be employed about December 1; toward the end of December the crew will be increased to 200.

### Ethyl Corp. Establishes Tune-Up Course for Motor Service Men

A post-graduate course in the engineering principles of automobile tune-up for mechanics, motor service men, and students of technical and trade schools throughout the United States is announced by the Ethyl Gasoline Corp. as an extension of its nationwide clinical education system affecting the oil and automotive industries.

Planned to supplement the practical and theoretical knowledge of automobile maintenance men and engineering students, the advanced study program will be carried out in Ethyl motor clinics, which during the next two years will function in more than 200 cities.

Forty-four automobile engineers and specially trained tune-up experts will constitute the staff of instruction, according to John G. Martin, national director of the Ethyl motor clinics.

### W.P.R.A. Technical Meeting in Shreveport, October 28

The second of the 1938 series of technical meetings sponsored by the manufacturing committee of the Western Petroleum Refinery Association will be held at the Washington-Youree Hotel, Shreveport, La., October 28, with a program devoted to subjects of interest to refinery workers and executives.

The first of the 1938 meetings was held in Wichita, September 29.

The first paper "Suspended Refractories for Refineries," will be presented by C. F. Pollen of the M. H. Detrick Co. which has been a pioneer in designing efficient and economical arches for refinery furnaces. The company has been particularly successful in reduc-

ing the thickness—and the cost—of arches and in developing a method of suspending the arches to provide greater efficiency.

"The Modern Automotive Engine and the Demands Upon Refiners for Fuel" will be discussed in a paper by W. W. Scheumann, Cities Service Oil Co. The modern engine will be analyzed in relation to the reduced weight per horsepower, its higher compression ratio, smaller displacement and higher speeds, all of which have required repeated changes in methods of producing a satisfactory motor fuel. Octane numbers in modern fuel have steadily increased in recent years and greater volatility has been required from year to year in an efficient fuel.

Mr. Scheumann's paper will be an analysis of the modern engine as well as the fuel required for its efficient operation.

Mid-Continent crude oils and their value as lubricants will be discussed in a paper entitled "De-Asphalting Mid-Continent Crudes by Distillation," to be presented by W. W. Kraft of the Lummus Co., New York. The process of eliminating asphalt from topped Mid-Continent crudes by distillation will be discussed and illustrated by slides.

The value of Mid-Continent crude oils as lubricants has received greater recognition in recent years and Mr. Kraft's discussion will be timely and of interest to all refiners in the Mid-Continent area.

The Shreveport meeting will be followed by a visit to the refinery of the Atlas Oil Corp. in Shreveport.

### Ben Franklin Refinery Commences Operations

The Ben Franklin Refining Co. plant at Ardmore was in production on October 19, at the close of a construction program which has been carried on since it was acquired from the Wirt Franklin interests in August. On October 12, the Ben Franklin Refining Co. took over the operation of the gathering system of the Pure Oil Co. in the Healdton field.

# Natural Gas

### Lone Star Gate Rate Case Is Resumed at Austin

AUSTIN, Tex.—Attorneys for Lone Star Gas Co. and the state have filed briefs with the Austin Court of Civil Appeals in the famous gate rate case which was returned to the civil appeals court by the U. S. Supreme Court last May.

Company attorneys claim the only thing the court of civil appeals can do is affirm the judgment of the district court which several years ago held excessive a rate reduction of from 40 to 32 cents per 1,000 feet ordered by the Railroad Commission in 1933.

The Texas attorney general's department maintains the U. S. Supreme Court action in reversing the court of civil appeals did not mean the company had won finally, but merely that the highest court did not approve of the appellate court's reason for reversing the trial court.

*Retiring president, N. C. McGowen, American Gas Association, turns over gavel to C. N. Lauer, Philadelphia Gas Works, new president*

### Federal Power Commission Orders Investigation of Gas Rates

Acting upon its own motion, the Federal Power Commission has ordered an investigation into the rates and charges of Natural Gas Pipe Line Co. of America and Texoma Natural Gas Co., for the purpose of enabling the commission to determine, with respect to each company whether, in connection with any transportation or sale of natural gas subject to the jurisdiction of the commission any rates, charges, or classifications demanded, observed, charged or collected, or any rules, regulations, practices, or contracts affecting such rates, charges, or classifications are unjust, unreasonable, unduly discriminatory, or preferential; and, if the commission shall find that any such rates, charges, classifications, rules, regulations, practices, or contracts are unjust, unreasonable, unduly discriminatory, or preferential, to determine and fix by appropriate order or orders just, reasonable and nondiscriminatory rates, charges, classifications, rules, regulations, practices, or contracts to be thereafter observed and in force.

The investigation, the first of its kind instituted by the commission under the new natural gas act, is the result of an appeal by the Illinois Commerce Commission that the Federal Power Commission direct these two companies to appear and show cause why the rates charged the Chicago District Pipe Line Co. and other utilities in Illinois should not be reduced, and asking that just, fair, and reasonable rates be fixed by the Federal Power Commission for gas sold to Illinois utilities by these companies.

### A.G.A.E.M. Annual Convention In New York Next May

The annual convention of the Association of Gas Appliance and Equipment Manufacturers will be held at the Roosevelt Hotel, New York, May 24 to 26.

# Natural Gasoline

*Engine room of Warren Petroleum Corp. Harjo plant, Maud, Okla.*

### Warren Office Employes Visit Harjo Plant

In order to familiarize office personnel with equipment used at a gasoline plant, the Warren Petroleum Corp. sent 18 employes from the Tulsa office to the company's Harjo plant during the past week. The trip was made in conjunction with a course of study conducted by H. W. Harts, superintendent of production, for the purpose of familiarizing members of the administrative and clerical force with technical phases of natural gasoline manufacture.

### Contract Let for Agua Dulce Pressure Maintenance Plant

Construction has been started in the Agua Dulce field in Nueces County on a $368,000 absorption and repressuring plant. Contract has been let to the Western Supply Co. of Tulsa.

The plant will have capacity of around 75,000,000 feet of gas daily which will process around 50,000 gallons of high-octane gasoline besides a number of by-products.

Gas for the plant will be furnished by L. M. Lockhart and G. P. Shelton. Mr. Lockhart has just completed his first of eight tests which is making a lot of gas and about 30 bbls. of oil daily. Mr. Shelton is coring for the sand in his first of eight tests to be drilled in the field. All tests will be completed in the 4,800-foot sand and as the wells are stripped of their gasoline content at that depth they will be carried to deeper horizons.

After the gasoline is taken from the gas it will be returned to the sand which eliminates the use of separator. Plant is to be located in the northeastern corner of the Ollie Purl farm in the field about 30 miles west of Corpus Christi. Operation of the plant is expected to start about December 15. Deal is also pending for the laying of a gasoline line from the site of the new plant to the Port of Corpus Christi.

### Natural Gasoline Imports Into Canada

OTTAWA, Ontario, Oct. 25.—Imports of natural casinghead, compression or absorption gasoline into Canada in July totaled 7,387,723 gallons valued at $316,201, of which 4,874,894 gallons valued at $206,670 came from the United States and the remainder from Peru. June imports, all from the United States, were 5,901,761 gallons valued at $245,080.

Imports of gasoline lighter than .8236 gravity, all from the United States, were 13,247,589 gallons worth $935,379 in July against 13,391,530 gallons worth $933,742 in June.

Exports of gasoline and naphtha from Canada in July were 574,438 gallons worth $51,168, against 976,362 gallons valued at $76,151 in June.

Canadian gasoline sales for the first six months of 1938 totaled 316,570,000 gallons, against 296,755,000 gallons in the same period last year. All provinces except Prince Edward Island and Alberta showed increases. June gasoline sales, which for the entire dominion amounted to 77,769,900 gallons in 1938 and 73,710,000 gallons in 1937, showed increases in all provinces except New Brunswick and Alberta.

## I.P.A.A.

*(Continued from Page 40)*

compact, so we will have the facts ready for submission to Congress when it convenes. Then we will be ready to go to town.

The president said: "Why, Thompson, it is just like a treaty. I get a treaty all ready, have it all written up, then submit it to the senate for approval." He said: "You get your states all lined up, send your treaty up here to me, and I will push it for you as soon as Congress meets."

### *PLEA FOR CIVILIZED COMPETITION IS MADE BY RICHBERG*

In his address at the annual banquet, Donald R. Richberg, former N.R.A. director, said:

The health of the petroleum industry is a public responsibility that must be fulfilled primarily by those engaged in it, with the essential aid of state and federal governments to the extent of their powers to serve the general welfare.

If there ever was an industry in which civilized competition was necessary, it is the petroleum industry. This means an orderly, regulated competition. I know of no other industry in which two or more independent property owners obtain a legal right to withdraw wealth from the same reservoir, so that a man's income may depend upon the speed with which he uses up his capital assets—or, let us say, converts them into cash.

At the same time, here is a product which cannot be stored indefinitely in large quantities, so that transit from the ground to the ultimate consumer must be practically a continuous process. Does any well informed person believe that the alleged laws of supply and demand should be allowed to operate upon such an industry without some corrective, stabilizing controls to establish and protect individual rights, to prevent intolerable waste and to avoid periodic cycles of feast and famine?

We might even assume that no oil producer would believe that he had a right to produce all the oil he could by any method he might choose, did we not know of the persistent opposition to quotas and proration by those who have quaintly described themselves as "legitimate violaters of the law." We have in America a great respect for independence. We can't help admiring the courageous, rugged individualist who, with deep conviction that he is right, declines to yield to majority opinion, even when embodied in a law. And so we easily forget that absolute liberty is anarchy and that any harassed people will in time establish a tyrannical authority if that is the only alternative to anarchy.

Most of the people in this country want to have cooperative planning and self-regulation developed by ways and means of self-government within the industry. They are neither ready nor willing to transfer their responsibilities to outside public officials. Nevertheless, I believe that they are ready and willing to have their cooperative programs subject to the review and approval of official representatives of the public interest. That is only the same protection which they would wish to be given against unchecked private regulation of another industry.

So it seems to me that the urgent and special needs of the petroleum industry should be considered as part of the urgent need of our entire system of private enterprise—a need for orderly controls developed through voluntary cooperative programs sanctioned by government.

### *PRESIDENT ROESER'S OPINION ON PRICE REDUCTION*

Our current price structure reverses a natural tendency. The present arbitrary method of determining price places upon the producer the burden of bad economic practices of other branches of the industry. He is repeatedly asked to pay the price for the poor judgment of some in other branches of the industry without being able to influence the actions of those others.

A sound price for crude must eventually find its foundation on the average price and cost based upon pumping wells. These wells must be kept in operation. Their premature abandonment would constitute a tremendous waste which the American people would never pardon. For that reason the average price of crude must be maintained at such a level that the costs of operating these wells will be covered.

Price has an important part to play not merely in conserving our present known reserves but also in adding to them. It may be interesting to note that based on yearly averages for the period from 1927 to 1937, a 10-cent change in the price of crude oil has been accomplished by a change of about 600,000,000 bbls. in annual discoveries of new oil deposits. In other words, following a 10-cent increase in price 600,000,000 bbls. more per year were added to our known reserves. We must continue to add to our reserves. If the past is any guide to the future, the recent drastic cuts in crude prices may mean that discoveries will be reduced to the danger point. We need only to recall the demoralized conditions of 1932 when new discoveries during the entire year amounted to only one month's supply.

Some producers, who in their anxiety to find an outlet because of their temporarily advantageous position are willing to sell crude below a fair market price, cause a breakdown throughout the area affected, from which place it flows through the entire industry and returns to the man who started it, who has by this time lost his temporary advantage and has become one of those whom his folly affects.

An important cause is one we have repeatedly called to the attention of the industry. Some refiners have refused to modify their activities to conform to reduced consumption and have therefore built up large excesses of refined products in periods of decreased demand and some refiners have been willing to sell their products below the cost of production forcing a false competitive position with destructive consequences.

We must not ignore, either, the attitude of some producers, both large and small who endeavor to obtain from regulatory bodies special privileges, special allowables, special concessions and special positions in the crude market beyond their reasonable share.

### *PUBLIC RELATIONS COMMITTEE OFFERS PLAN FOR ACTION*

Any successful public relations program must be based upon facts and figures. Consequently, it is necessary that we fortify ourselves with all possible statistical and historical information on which to base the presentation of our case. All necessary data should be assembled before starting our program. Much of this information may be obtained from industry and be compiled by ourselves.

"1. After statistical and historical data have been assembled our basic story should be reduced to written form. It should include all the facts and arguments to be used. After it is approved by the executives of the association it should become the basis of all news articles and public statements. A series of pamphlets containing information which has been developed in the telling of our story and including facts and figures, should be prepared and printed so that full information may gradually be placed in the hands of all those interested as well as others whom we desire to interest in this subject matter. Out of the pamphlets there could ultimately come a handbook containing a statement of our case in full detail, so that complete information may be placed in the hands of all members of our organization.

"2. The next step should be the canvassing of all of our own media for publicity. This would include first the association's own magazine, and house organs of the various companies which are members of the association, trade magazines, envelope stuffers for pay checks and royalty checks and passout folders for service stations; also such newspapers as feel that in the public interest they should inform their readers of all facts, conditions and circumstances which affect independent oil producers and those whose economic destinies are in turn directly and indirectly dependent upon their prosperity.

"3. One of the best means of securing publicity is through the medium of public speakers. An address to any industrial or civic club not only reaches the listeners assembled, but also receives newspaper publicity. In our organization there are a number of prominent men who would be willing to address various groups. A bureau of volunteer speakers should be organized in order that we may avail ourselves of this means of publicity. These speakers should appear before civic clubs and industry meetings throughout the country. In as much as our association's officials can be very helpful in this work outside the oil states proper. Our industry is of vital interest to all the people in the nation it should be a simple matter to arrange for speaking engagements if we have the talent available.

"4. A series of letters should be directed to all members of the association outlining the plan and its purposes and soliciting their cooperation. It should also be brought to their attention by speakers at all association gatherings. Our primary job is to sell our own members on the plan and secure their financial support.

"5. We should also request our employees to assist in this work. A series of printed pamphlets should be put in their hands. This program should be carried out not only with our own employees of the oil companies, but also with employes of all business institutions such as supply houses, and stores whose business is directly dependent upon the oil industry.

"6. Later, and as funds may become available for such purposes, a campaign of education through magazines and over the radio might be deemed advisable.

ORGANIZATION

"We recommend that the association immediately employ a man to devote his entire time to public relations work. He should have sufficient ability and a sufficient knowledge of the subject matter to enable him to competently and efficiently discharge all of the duties of the position. He should work as a member of the regular staff of the association and be under the direct control of the executive officers of the association. We recommend that the president of the association be authorized and instructed, with the approval of the executive committee, to proceed as recommended; and to appropriate for the purposes described such an amount as in their opinion shall be necessary and desirable."

## THE MARKETS*

CRUDE OIL: *A drop of 2,000,000 bbls. in crude stocks, following one of 1,845,000 the week before, has imparted a firmer tone to the crude market. The train of reductions in price schedules seems to have ended, and the clamor on the part of refiners for lower postings has subsided.*

REFINERY: *Another cut of an eighth-cent in Group 3 gasoline prices generally believed to mark the bottom of the downward drift. Market still irregular. Heating oils steadier, and heavy industrials showing signs of improvement. Wax beginning to soften slightly.*

TANK-WAGON AND POSTED DEALER: *Standard of Indiana reduced its gasoline price to dealers in the Chicago area 1 cent to meet competitive conditions. Standard of Kentucky effected general adjustments of prices on both gasoline and kerosene.*

FINANCIAL: *Oil shares moved moderately upward at the end of the week, but closed under their highs. Average of 30 representative stocks for week ending October 22: High, 29.14; low, 27.29; close, 28.78. Week ending October 15: High, 28.70; low, 27.08; close, 27.93.*

**Detailed information in market section.*

## Obituaries

**NORMAN R. BAKER,** New York, manager of the real estate division of Texas Co., died October 19, following an operation. He was born in Portsmouth, Ohio, March 12, 1893. He had been with the company since 1930 when he organized the real estate department.

**RUSSELL JOHN HAWN,** vice president of Monsanto Chemical Co., died recently at his residence in Birmingham, Ala.

older Illinois fields will contrast those operating practices with today's scientific methods, they will appreciate the immense progress in engineering knowledge of the natural laws governing oil production.

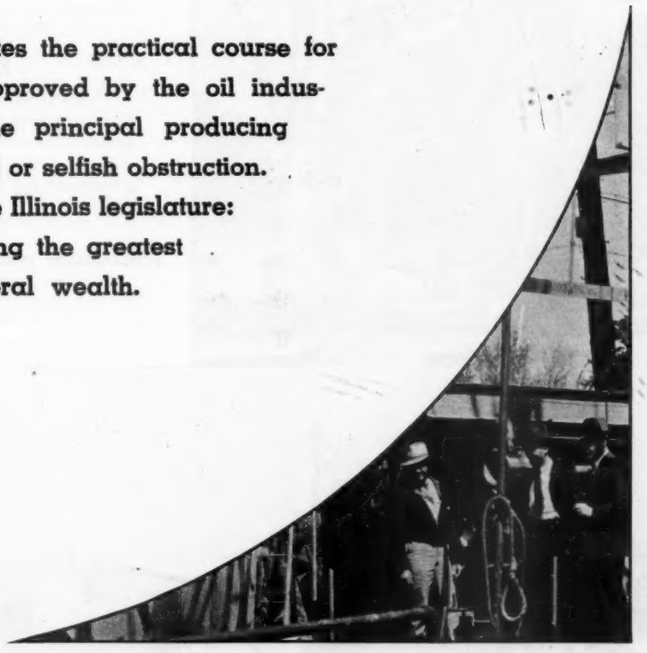
Sand conditions, pressure maintenance, reservoir equilibrium, are vital factors in greatest ultimate recovery. The best engineering practices assure the largest return. Their use by the most successful operators proves that they are the best paying.

Where conservation has been flouted on plea of individual need or immediate gain, what has been the net result? Irretrievable loss—sacrifice of money in the bank for a handful of ready change.

Illinois' new fields can be nursed along by modern operating methods to yield a maximum volume of oil. Or they can be allowed to share the fate of innumerable other fields, wherein wasteful practices have made the bulk of the oil irrecoverable by any known means.

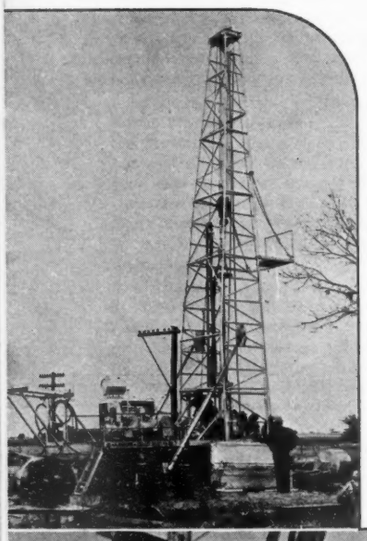
Enlightened self-interest indicates the practical course for Illinois. Conservation has been approved by the oil industry at large and adopted by the principal producing states, despite occasional misguided or selfish obstruction.

There is but one issue before the Illinois legislature:
The interest of its people in assuring the greatest possible recovery of Illinois' mineral wealth.



# Estimated Acreage and Reserves in Illinois

By L. G. E. BIGNELL



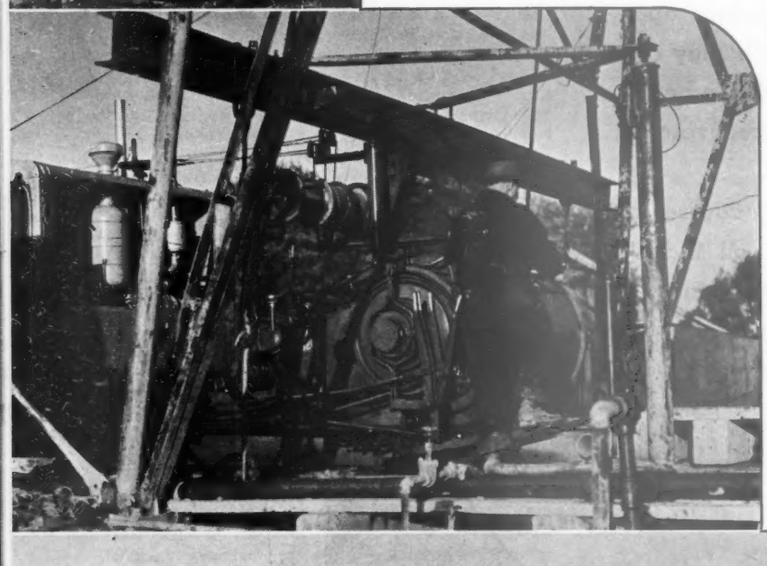
*Portable unitized rotary at work in the Louden field*

*OPERATORS* in the Illinois basin area will have the advantage over operators in the older fields of southeastern Illinois in that they can apply modern development and production methods to the recovery of the gas and oil in the newly discovered pools. These new fields can be roughly divided into two classes: the lime production from the Ste. Genevieve or McClosky formation now developed in Clay, Wayne and Richland counties in the central portion of the basin, and the sand production of Fayette, Clinton and Marion counties along the western edge of the basin. Each type of formation presents its own particular problems in completion and production but with experience gained in other fields it will be possible to apply modern engineering technique and in this way be assured of lower capital investment and at the same time greater ultimate recovery of the oil within the reservoirs.

A study of the sand fields in the western part of the Illinois basin has revealed the gas-oil ratio to be comparatively low. In the Benoist zone it is about 400 feet of gas per barrel of oil. Some companies already have started putting gas back into the producing zone after extracting the natural gasoline and in this way are attempting to maintain the original formation pressure of about 675 pounds per square inch. Engineers realize the full importance of the production problems confronting them but they all agree much can be done to increase the yield of oil from sand wells if proper development and production practices are followed.

The wells in the center of the basin which are producing from the Ste. Genevieve or McClosky lime will be acidized and this will tend to increase both the rate and quantity of oil to be ultimately recovered. In the older pools of the state, such as in Clark, Crawford and Lawrence counties, the production comes from Pennsylvania formations and to date they have yielded about 4,400 bbls. of oil per acre. It is believed this production can be increased about one-quarter, or about 1,100 bbls. per acre, by secondary recovery methods, including repressuring. The old area has produced to date about 433,000,000 bbls. of oil and the old wells are still averaging .9 of a barrel per day per well.

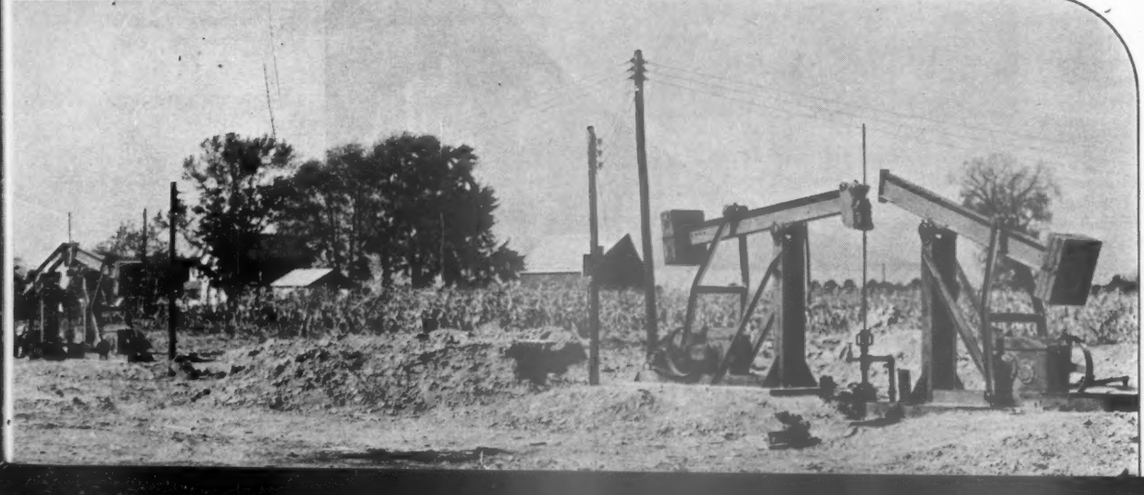
The new area has produced in excess of 13,000,000 bbls. of oil already but the wells have shown a rapid decline and the daily production rate has increased only because of the completion of a large number of new wells. There is no conservation law in Illinois at this time and the only curb placed upon wells has been pipe line allocation. However, the total daily production of Illinois is less than 3 per cent of the nation's daily output. It is expected to reach 100,000 bbls. per day before the end of this year.



*Mechanical rotary drilling in Centralia, Ill.*

### Estimated Proven Acreage in Basin Area

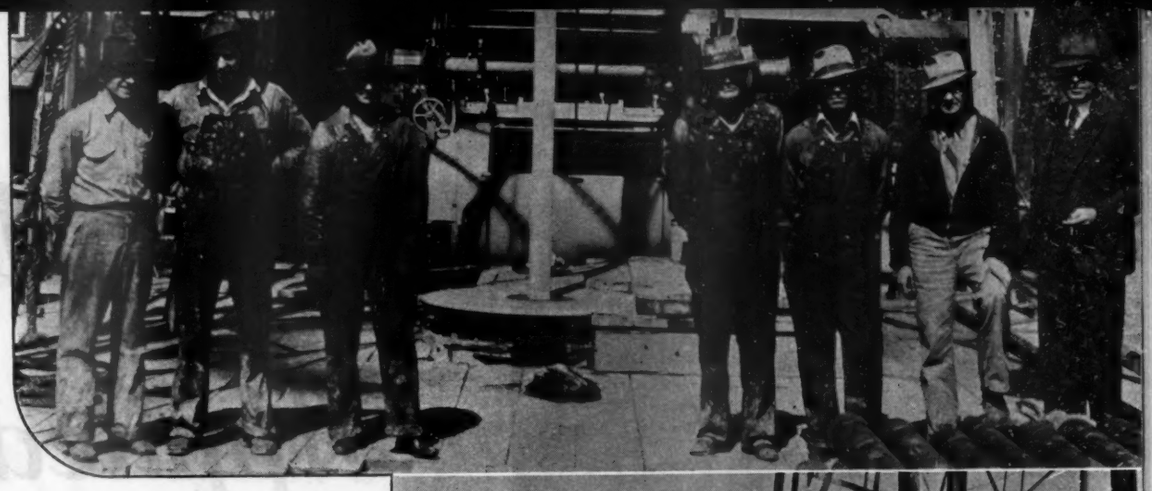
A study of the new areas reveals that about 26,000 acres of new production have been opened in the sand zones on the west side of the basin, while about 5,750 acres have been proved to be productive in the new fields discovered in the McClosky lime region. These discoveries are tabulated in the accompanying table and may be used as a basis for calculating recoverable oil in the basin area. There are many estimates on the probable recovery from the Benoist sand zone, some as low as 5,000 bbls. per acre and others as high as 11,500 bbls., depending upon the thickness of the sands making up this zone. A conservative estimate of 200 to 250 bbls. per acre foot has been arrived at by geologists and engineers of companies owning appreciable acreage in these new fields. Upon this basis there should be about 240,000,000 bbls. of new recoverable reserves in that section of the state. If this oil is accompanied by 400 feet of gas per barrel it will mean a total gas reserve of 96,000,000,000 feet.



*Electrical pumping of wells in the Louden field*

The estimated recoverable oil from the lime areas has been placed at 5,000 bbls. per acre, which would mean a total reserve of 20,000,000 bbls. This brings the estimated total of sand and lime fields to 260,000,000 bbls., and this is being increased constantly by new discoveries.

At the present price of $1.15 per barrel for basin oil this represents a gross value of $300,000,000 and the one-eighth royalty usually paid would mean $37,500,000 to the landowners. If half of the gas estimated above as accompanying the oil from the sand wells is conserved and is worth 10 cents per thousand at wells it would add $4,800,000 to the gross income. These figures indicate the sums involved are large enough to make conservation an important item and one to be seriously considered by everyone interested. However, there is another important side to conservation and that is the conservation of capital investment.



*Drilling crew, contractor and producer, Centralia, Ill., well*

If the natural energy confined in the producing formations is conserved it is believed that in some fields one well to 20 acres will be sufficient to properly drain the sand zones, if pressure maintenance or recharging of the sands with gas is effective. This program will be started by some operators with the proviso that if the one well will not drain the 20 acres the well-spacing pattern is so laid out that other wells can be drilled later, when and as needed. In addition to the eight oil wells to be drilled on the one-well-to-20-acre spacing basis it is contemplated that one additional well will be drilled in the center of the 160 acres to serve as an input well for the gas.

### Conservation Will Reduce Development Costs

Upon the basis of one well to 20 acres it can be estimated that to develop the 26,000 acres of sand production now opened will require about 1,440 wells at a cost of about $15,000 each, or a total of $21,600,000. This covers only the cost of the wells. An equal sum will be required for other lease development costs, giving an estimated expenditure of $43,200,000. If one well is drilled to each 10 acres the cost will be doubled and the cost will continue to increase as the acreage-per-well is reduced.

It has been demonstrated that the recovery of oil per acre is not necessarily increased by close spacing and in some instances it can be demonstrated it has been decreased. The above estimates have not taken into account the cost of leasing the land and many other costs entering into the development of an oil property so it is not right to assume the difference between the cost of drilling and equipping a lease and the income after royalty and taxes are paid will be the profit to the oil companies. There still remains the item of production costs which may be appreciable in these Illinois wells.

Experience has shown oil companies there are many items of expense entering into the production of oil. The margin of profit in fields yielding from 5,000 to 10,000 bbls. of oil per acre is not great and can easily be turned into a loss if too many wells have to be drilled and the natural energy in the formations is not conserved.

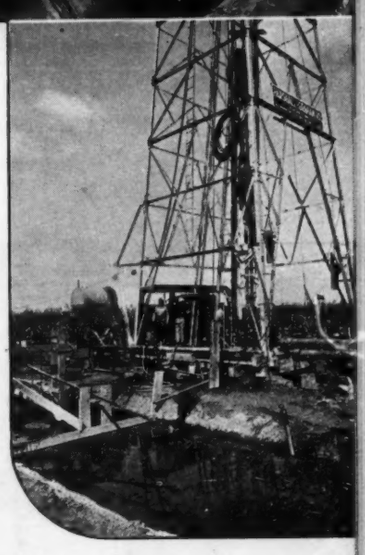
The sand fields of Illinois are peculiar in that they do not contain large volumes of gas along with the oil. It seems certain water will accompany the oil and in time this will prove an item of expense both to bring above ground and later to dispose of in such a manner as not to cause trouble to surface properties.

One of the major questions before the oil industry at this time is: "Will the producers in Illinois favor conservation of the gas and oil in the recently discovered pools?" This is important because if conservation is practiced it is evident already that the daily rate of production from the wells should be limited by natural conditions. It is also important because it will influence the development program to be put into effect by the operators. Likewise it will have a direct bearing upon the income the state will collect through gross production taxes. If conservation is practiced a greater amount of money will be collected ultimately. Most of the major companies interested in Illinois favor true conservation. This desire is based upon past experience in oil fields in other states and, as the means are at hand to develop and produce the new fields of Illinois in accordance with best modern practice, it is their hope that they will be permitted so to handle their properties as to secure the greatest ultimate oil and gas production.

**RESERVE ESTIMATES OF OIL FIELDS, ILLINOIS BASIN AREA**

| Field or area | County: | Producing formation | Thickness (feet) | Area field (acres) | Reserves per acre | Reserves for field |
|---|---|---|---|---|---|---|
| Clay City | Clay and Wayne | Ste. Genevieve or McClosky | 8.7 | 5,755 | 3,480 | 20,000,000 |
| Centralia | Clinton | Benoist | 26 | 1,600 | 10,400 | 16,640,000 |
| Louden | Fayette | Benoist | 40 | 15,000 | 8,000 | 120,000,000 |
| Salem | Marion | Benoist | 46 | 8,700 | 11,500 | 100,050,000 |
| Patoka | Marion | Benoist | 16 | 500 | 4,000 | 2,000,000 |
| Dix | Marion | Benoist | 18 | 350 | 4,500 | 1,575,000 |
| | | | | 31,905 | | 260,265,000 |

*One of Carter Oil Co.'s rigs in the Louden area*



*Drilling a wildcat in an Illinois corn field*

State officials of Illinois indicate it is their desire to have laws to conserve natural resources enacted at the next session of the legislature in January. Governor Horner is quoted as having said:

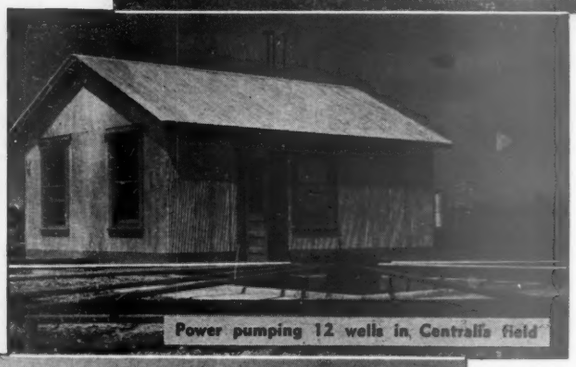
"Illinois will have conservation and regulatory laws pertaining to the oil fields, just as Illinois now has laws of like nature pertaining to coal and other minerals.

"They will not only be fostered by this state administration, but they will be wholeheartedly fostered, even demanded, by the oil industry and oil landowners."

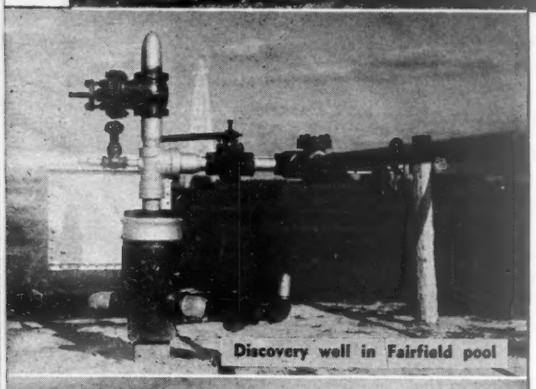
The oil industry as a whole earnestly desires to have conservation laws of the best type enacted by the next legislature. There has been plenty of experience in other states to guide the legislators in the drafting of those new laws so they will be fair and equitable to the industry, landowners and state, and at the same time protect the consuming public.

With these new oil fields situated in the heart of a large consuming area the temptation to reduce the oil to possession quickly and convert it into finished products will be great. However, since Illinois belongs to the Interstate Oil Compact, fair consideration will be given to fields in older producing areas so they may not be penalized. With the passage of conservation laws regulation of the oil industry can be enforced and conservation made practicable.

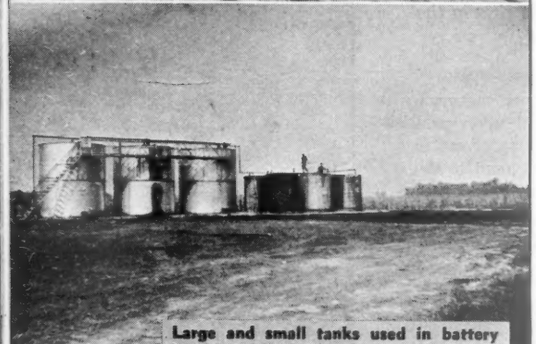
Two separators on tank battery



Power pumping 12 wells in Centralia field



Discovery well in Fairfield pool



Large and small tanks used in battery

Type pump used in Birdhaven field

Wells close together at Lake Centralia

# Producing A

# Applied in the I

By HARRY F.

Due to the high percentage of oil wells, which are resulting from the extensive drilling campaign in Illinois, the production activity in the basin area has increased beyond optimistic expectations. Of the 1,380 wells drilled between October 1, 1937, and October 8, 1938, 1,076 were completed as oil producers and 10 as gas wells, leaving only 294 dry holes. Operations have been accompanied by a high degree of success with 78.9 per cent of the wells being producers with an increase from 17,500 bbls. daily average production to 73,870 bbls.

Indicative of the size of the wells and amount of production is the average initial production of completions for the last 11 weeks which shows 94 bbls. per well for 25 wells to be the least, and 320 bbls. per well for 56 wells, the greatest. The low figure included two wells with initial production in excess of 500 bbls. per day; these were the No. 1 Raccoon School of Wanner and others in Section 6-1n-2e of the Lake Centralia pool and the No. 1 Winter of the Texas Co. in the Olney pool. The former was a Benoist sand well and the latter a McClosky lime well. The larger figure was due to the completion of several heavy producers in each of the new important fields in the state, Lake Centralia, Louden, Fairfield and Olney, during the second week in September. Other completions for that week also averaged high.

### Production Curtailed

Average daily production of wells drilled in the state since the opening of the activity in the spring of 1937 is approximately 41 bbls. per day with the wells drilled since last October having an average of 57 bbls. per day. A contributing factor to the lowness of the latter figure is the efforts at conservation by several of the larger companies. Where it is possible, they are reducing the immediate production of their wells to maintain gas and pressure in the sand in order that the greatest ultimate production will be possible. Another factor is the limitation of storage and transportation facilities in some areas that naturally curtail production. Production of all wells in the state at capacity would show a substantial increase in the daily average per well figure.

Production from wells drilled in the new areas of the state totaled 11,101,630 bbls. on September 1. Approximately 14,000,000 bbls. can be credited to new discoveries up to October 15, 1938. Nearly 26,000 proven acres have been credited to the Benoist areas and 6,000 to the McClosky areas during the past 22 months. In many cases the Benoist acreage is overlaid by the Cypress or underlaid by the McClosky.

### High Average

The "oil completions" line (Figure 1) stays remarkably close to the "wells drilled" line for a territory that was only a wildcat prospecting country to most oil operators less than two years ago. Widest divergence was during the early part of December, coincidental with the completion of a large number of wildcats started by independent operators who had in most cases located their wells without scientific aids. Other failures were due to numerous offsets to "pool openers" before the trend of the structure became apparent. Ten per cent of the wells located without scientific means were completed as producers during 1937 while 23 per cent of those located by geology and geophysics, or a combination of both, were successful. Operators have developed a more watchful and waiting attitude toward the development of their properties, particularly in the McClosky lime areas where several fields failed to materialize as expected and dry holes resulted in a loss. The sand pools have been extended more rapidly, one factor being the lower cost for a test, most of them being from one-third to one-half the depth of the lime pays.

Production departments were much in the same class with drilling departments when the Illinois play opened and operations were frequently hampered by lack of a satisfactory supply service. Larger companies had pumping machinery, tankage, and tubular goods shipped to them in carload lots and stored this equipment in their own warehouses. Supply companies and machinery manufacturers have caught up with the development, and requirements of oil companies are now being satisfied. At present the major difficulty of larger companies is to meet their expanding requirements for men. The rapid completions of wells requires the staking of locations, setting of tankage, separators, pump jacks, flow lines and, in some cases, electric transmission lines, all with-

**DRILLING COMPLETIONS FOR 11 WEEKS**

| Week ending— | Completions: Oil | Gas | Dry | Wells drlg. | Rigs up | Dly. av. production (bbls.) | Initial production (bbls.) | Average I.P. per well (bbls.) |
|---|---|---|---|---|---|---|---|---|
| July 30 | 30 | 1 | 10 | 220 | 22 | 41,298 | 4,740 | 158 |
| August 6 | 25 | 0 | 3 | 230 | 27 | 40,201 | 2,350 | 94 |
| August 13 | 26 | 0 | 11 | 218 | 31 | 44,419 | 4,405 | 169 |
| August 20 | 25 | 0 | 8 | 247 | 40 | 48,109 | 8,324 | 333 |
| August 27 | 30 | 0 | 16 | 253 | 39 | 58,167 | 7,043 | 234 |
| September 3 | 31 | 0 | 8 | 266 | 35 | 59,900 | 6,980 | 225 |
| September 10 | 28 | 0 | 12 | 290 | 35 | 65,760 | 8,200 | 285 |
| September 17 | 56 | 2 | 9 | 303 | 43 | 67,641 | 17,950 | 320 |
| September 24 | 51 | 0 | 9 | 316 | 41 | 75,447 | 12,922 | 255 |
| October 1 | 43 | 0 | 15 | 395 | 36 | 76,960 | 8,100 | 188 |
| October 8 | 58 | 0 | 13 | 303 | 41 | 73,970 | 14,598 | 251 |

# Practices in Illinois Basin

F. SIMONS

in 10 days' time. This calls for a large, well-organized production department and the new fields have been increasing so rapidly throughout the summer that larger companies have been hard pressed to keep up with necessary work. They are also endeavoring to get their programs outlined so the winter weather will not hinder the development or the transportation of oil.

A record of the 11 weeks from July 30 to October 8, 1938, shows a steady increase in completions and production with a sharp jump in both during the middle of September.

### Pay Thickness

Producing formations vary widely in the thickness if the range from the McClosky to the Benoist is considered. The average thickness of the McClosky is 8.7 feet and the Benoist averages 33 feet in thickness in the new fields. Variation from the average is not uncommon, some of the Benoist wells having less than 10 feet and some of the McClosky wells having only a few feet of pay sand. On the other hand, the Benoist is frequently much thicker than the average, approaching 50 feet total thickness in spots. The McClosky is rarely more than 15 feet in thickness.

Porosity of the Bethel (Benoist) and the Cypress (Weiler or Stein) is unpredictable and changes from location to location. On wells which were relatively good producers, a distinct change was noted in the drilling rate between the Bethel lime and the Bethel sand and in various sections of the Bethel. On wells that did not prove to be such good producers although occupying about the same relative height on the structure, there was little change in the drilling rate when going from the lime into the sand and few soft spots were found in the sand. The Cypress often shows the same wide divergence in porosity. The Benoist is quite quartzitic and generally contains large amounts of shale and some pyrite. The sand grains are frequently loosely cemented and generally poorly sorted. The Cypress is similar to the Benoist, both at times approaching solid sand beds.

The Illinois Geological Survey has been making extensive tests of porosity and permeability of cores obtained from wells drilled in the sand and lime areas. Indications are that the porosity of the Cypress and Benoist will run in the neighborhood of 18 per cent with the permeability showing a wide divergence from 7 to 987 millidarcys. In one well the permeability figure varied from 2 to 994 millidarcys and in another from 2 to only 138 millidarcys for cores taken from the Benoist. Complete tabulations of the results of these tests are not available but they should be of interest to production men when they are released.

The name "McClosky" is applied to any oolitic limestone in the Ste. Genevieve that may produce oil. There are two types of these oolites, one being about .05 mm. in diameter and the other ranging from .07 to .15 mm. The former is generally very firmly cemented while the latter is frequently loosely cemented. The latter is not always present in the Ste. Genevieve and when it appears it generally makes up a rather thin zone overlaid by several feet of interbedded white oolitic limestone and green to black shale. In nearly every case where the larger oolite is present the well has either produced oil or water or had a show of oil. (Preliminary Report on the McClosky Oil Horizon in Western Kentucky, Series 8—Bulletin 3 of the Geological Division of the Department of Mines and Minerals of the Commonwealth of Kentucky.)

The Kentucky McClosky is similar to the Illinois McClosky and the presence of the oolitic zone is very important from the stand-

*(Continued on 144)*

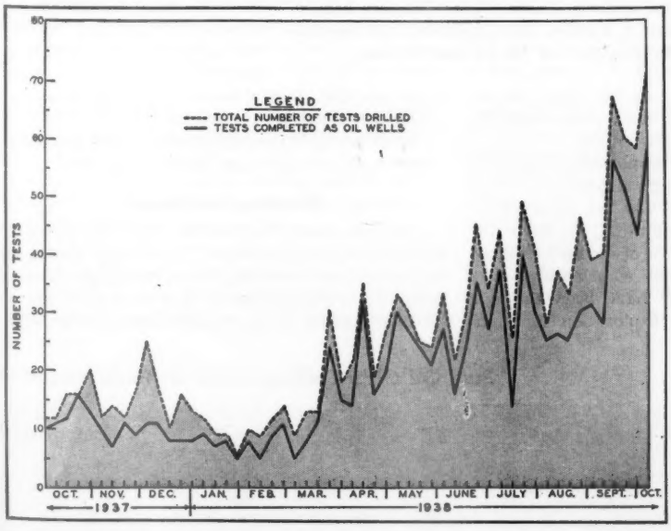
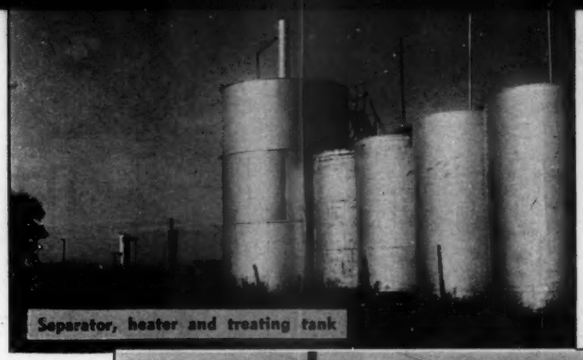
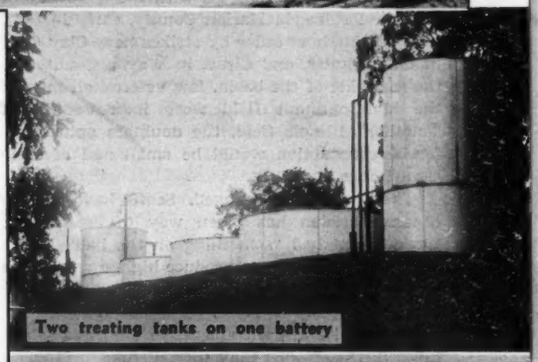



*Fig. 1—Number of producing wells in relation to number of tests drilled in Illinois from October 2, 1937, to October 8, 1938*


Separator, heater and treating tank

Passersby protected by fence


Two treating tanks on one battery

Largest well in Illinois, Morelan No. 3

Loading rack in Fairfield pool

Neat pumping unit in Centralia, Illinois

*Looking across Lake Centralia from Blankenship Point, wells near water's edge*

# PLAN LONG DRILLING P

By Dal Dalrymple

Little Egypt, like the New York Yanks, has forced the public to recognize its merit by the sheer force of ability—Little Egypt being the local name for the great and fertile southern Illinois basin, and its ability, in this instance, being that of producing crude oil.

When the current leasing and drilling campaign received its initial impetus with the discovery of oil near Patoka, in Marion County, early in 1937, followed in short order by strikes near Clay City, in Clay County, and Cisne, in Wayne County, on the east side of the basin, few veteran oil men of the Mid-Continent field were impressed. Just "another" Illinois field, the doubters opined, inferring production would be small and of little significance.

The picture has changed. Scoffs have become cheers, derision has given way to recognition. Little Egypt had "something on the ball" in the manner of its ability to produce high-gravity oil in ever-increasing quantities and from comparatively shallow depths.

Discoveries at Centralia, Lake Centralia-Salem, Louden, Dix, Noble, Clay City, Patoka, and other pools have proven that here, indeed, is an oil field to be reckoned with.

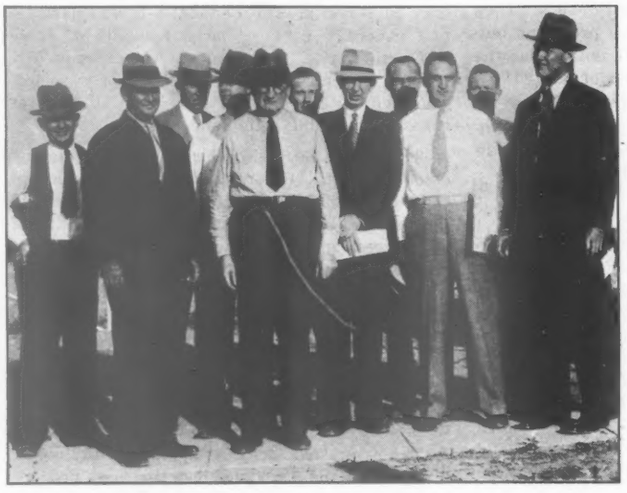
They can't laugh away such strikes as those!

Once convinced that southern Illinois had merit as an oil country, the Mid-Continent operators moved in. From Oklahoma, from Texas, from Kansas, and from other oil states they came, anxious to share in the shallow and profitable production that was to be found in Benoist sand or McClosky limestone. Veterans of the Ranger boom, oil prospectors of every tinge and hue who had followed the plays at Cushing, Seminole, Oklahoma City, El Dorado, Smackover, Borger, Mexia, East Texas, Rodessa, and elsewhere came pouring in, and the Illinois boom hit its stride.

## Work May Increase

Now, nearly two years after the strike at Patoka, there is little indication of abatement in the Illinois activity. In fact, drilling operations are due to increase, and production will continue to soar for months to come. The lease play may have waned somewhat in the Central basin counties, where the major activity has centered and where great blocks of acreage have been assembled, but it continues apace in neighboring and outlying counties, extending even into nearby districts of Indiana, Kentucky, and Missouri. Many wildcat tests are being drilled or are projected over an area that extends well beyond recognized limits of the basin, and an important strike at any of these would prolong the intense activity.

The far flung Illinois activity, however, is not accompanied by the wild excitement and hysteria that has featured some of the more spectacular Oklahoma and Texas booms. With the dawn of realization that here in Illinois was an oil field of immense potentiality, the initial excitement was intense as lease and royalty buyers rushed in and joined in the mad scramble for acreage. That period of near-hysteria subsided, however, tempered by the fact that numerous dry holes were drilled and that lease and royalty prices soon soared beyond reason. Then the more conservative but widespread and steady period of buying set in, subsequent discoveries gave more information as to what might be expected from the pay sands, and prices were adjusted to more nearly their true value.



*Standard of New Jersey and Carter Oil Co. executives visit the Louden field. J. R. Doles, Ajax Pipe Line Corp., Springfield, Mo.; E. J. Sadler, vice president, Standard, New York; W. R. Finney, president, Oklahoma Pipe Line Co., Tulsa; Ralph Damp, Carter, Mattoon; J. J. Conry, president, Carter, Tulsa; L. F. McCollum, vice president, Carter, Tulsa; C. H. Lieb, Standard, New York; M. W. Fuller, division geologist, Mattoon; F. W. Floyd, vice president, Carter, Tulsa; R. J. Sullivan, engineer, Mattoon; Oliver Hopkins, Imperial Oil Co., Toronto, Canada; William A. Watkins, Carter's division superintendent at Mattoon, is behind Mr. Hopkins, only his left hand showing*

Southern Illinois, then, has no mad boom as it is known in the southwestern states.

There are good reasons for this absence of mushroom booming. For one thing, southern Illinois primarily is an agricultural country, thickly settled by substantial citizens who, mostly, own their own properties. They have been through periods of oil leasing and exploration in other years and refuse to get unduly excited at this time. While there are no large cities in the area now under development, there are several small cities such as Centralia, Mattoon, and Mount Vernon. In addition, there are many old and substantial towns of from 1,000 to 5,000 or more population. These generally are modern communities, with adequate utilities, schools, churches, and business houses, and connected by a network of railroads and good highways. Such conditions preclude the necessity of building the beaverboard villages common to other boom areas.

Of all the communities in the Illinois field, the city of Centralia and the town of St. Elmo, perhaps, have more of the characteristics of an oil boom town than the others. Centralia has its townsite pool, and is headquarters for many independent operators and lease buyers, several supply houses, and two or three large companies. Already a city of some 12,000 citizens, it has taken the new development in its stride. The hotels are crowded, many oil men throng the streets, the population has increased several thousand, and housing is at a premium, but otherwise it has avoided most of the bad features common to booms.

St. Elmo, originally a town of about 1,300 population, is near the Louden pool, now the largest of the new areas. Here the conditions common to towns in the heart of development in the Southwest are most in evidence. The streets are crowded with oil-field workers, heavy field traffic is in evidence, supply houses are numerous, some buildings have been hurriedly erected to take care of the new business, and a general stir of intensive activity permeates the community.

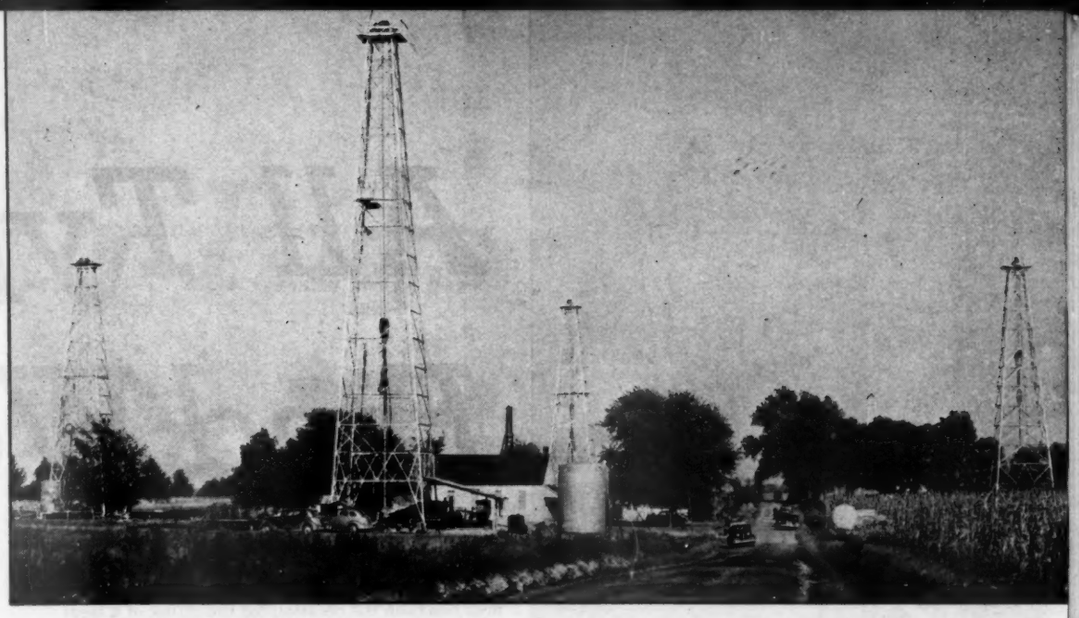
Other towns in the Illinois field, while generally crowded, do not have the boom atmosphere.

## Housing Conditions

Mattoon, already called the "Tulsa of Illinois," is the outstanding example. There may be found the headquarters of a majority of the major oil companies operating in Illinois. They were attracted to Mattoon because of its excellent hotel, office, and

*Pure Oil Co.'s Colborn camp at Noble, characteristic*

# GPROGRAM



*Four wells drilled by Texas Co., offsetting a one-acre schoolhouse lease in Lake Centralia-Salem field*

housing conditions. Many company executives and employes, as well as independent operators, now make their homes at Mattoon. The Mid-Continent Map Co. established its Illinois headquarters at Mattoon, and several firms engaging in some form of oil activity are there. But it has more of the appearance of a busy, prosperous commercial town than a boom community.

Similar conditions prevail in somewhat lesser degree at Olney, Effingham, Mount Vernon, Vandalia, Salem, Flora, and neighboring towns. And on the far eastern side of the basin in the old Illinois fields are the cities of Lawrenceville, Robinson, and Bridgeport, each long attuned to the oil business. In all of these towns are good hotels, schools, and churches, and many oil men active in the fields prefer to live in them and commute to the scene of activity. This opportunity for the oil men to reside in the town of their choice and commute to the fields largely is responsible for the absence of the frenzied boom atmosphere in the state.

*Scouts in the Illinois fields. Front row: Earl Woolridge, Continental; J. H. Walker, Sunray; W. D. DeMars, Texas; H. A. Sackman, Phillips; Max D. Engle, I.T.I.O.; W. W. Simpson, Skelly; T. C. Patten, Tide Water; Paul B. Trees, Gulf; V. H. Welch, Amerada; Jack Kaufman, W. C. McBride, Inc. Middle row: W. E. Tracey, Ohio; P. E. Romine, Gulf; Bill Brewster, Magnolia; John Asbury, Shell; W. A. Crutcher, Carter; R. T. Chapman, Stanolind; Noel Engel, Superior of California; A. H. Lloyd, Sinclair Prairie. Top row: C. L. Bell, Kingwood; W. J. Watson, Adams; J. R. Deardorff, Transwestern; J. L. Fosness, Cities Service; R. P. Kinzey, Eason, W. D. Davis, Phillips; T. B. Steele, Jr., Pure; W. R. Wilson, Jr., Pure, czar; A. H. Emerson, Sun*

A glance at the completion and production table will show how Illinois has increased in importance as an oil state in the last two years.

In January 1937 five wells were completed in the Illinois area, and only one of those was a producer. Within a few months, however, the results of discoveries at Patoka and in the McClosky lime area of southeastern Illinois was reflected in the reports, the peak for the year being reached in September, when the 92 completions included 63 producers. The winter lull in operations then set in, and it was not until March 1938 that another increase was registered.

The Centralia townite development was going strong then, and activity in the Beecher City-Louden area was increasing, with the result that 107 wells were completed in March to set a high record for the new development. That record soon was eclipsed as work gained momentum in the several new areas, September setting the pace with 268 completions, including 206 producing wells.

The production tables show similar increases. Yield from the new pools was not tabulated separately from that of the old fields until June 1937, when the monthly production from the new areas totaled 53,000 bbls. Since then production in new sectors increased steadily, totaling 2,884,000 bbls. at the end of 1937. The rapid rate of increase in the first nine months of 1938 is reflected in the September total of 2,157,000 bbls., to bring the total this year to date to 10,434,000 bbls. During the same period production from the old fields remained at around 400,000 bbls. monthly.

Development of Benoist sand production on the western side of the basin, particularly in the Centralia, Salem, and Fayette county areas, has largely overshadowed operations in the McClosky lime areas of Richland, Clay, and Wayne counties on the eastern side of the basin throughout 1938. although the latter have accounted for the biggest producers. This was due in part, at least, to the shallower depth at which Benoist production is found and the resulting shorter time in completing wells.

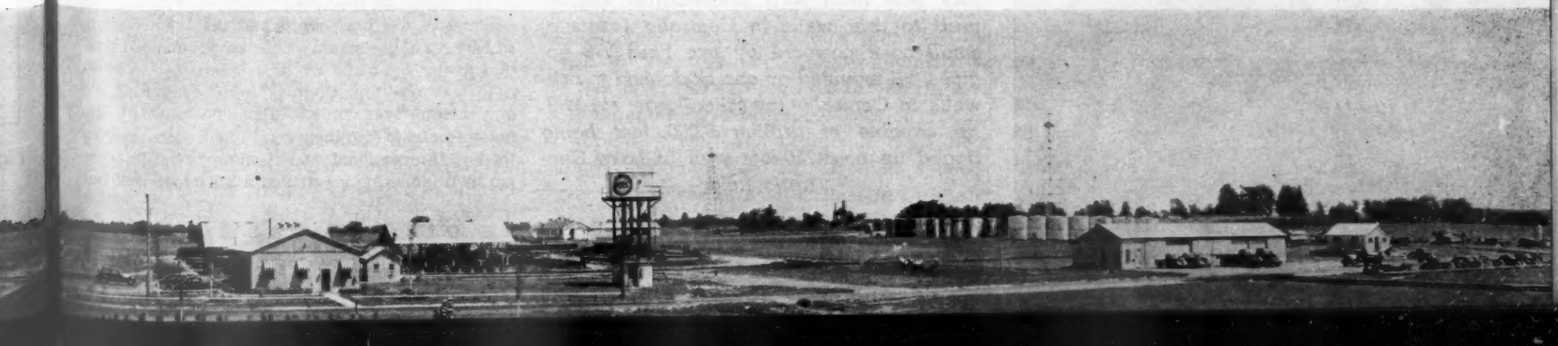
### Important Sand Pools

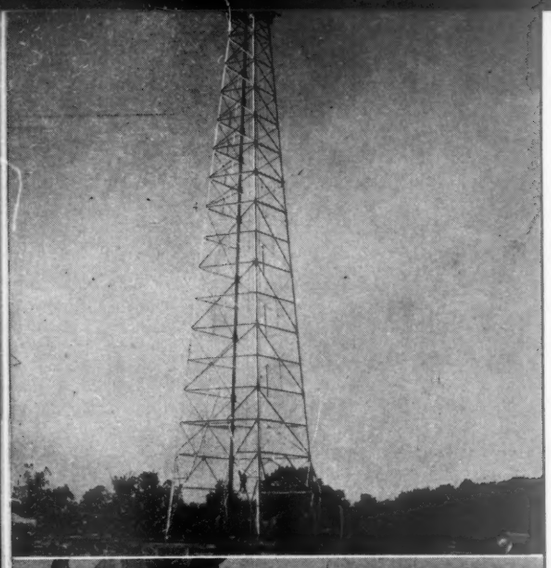
Three Benoist sand pools stand out in any report of this year's development—the Centralia townsite pool in Clinton and Marion counties the Marion County pool, variously called Lake Centralia, Salem, or Texaco, and the big area in Fayette County which is dubbed either Louden, Beecher City, or St. Elmo. The variety of names given some of the Illinois pools exemplifies the need for a nomenclature committee to determine such matters.

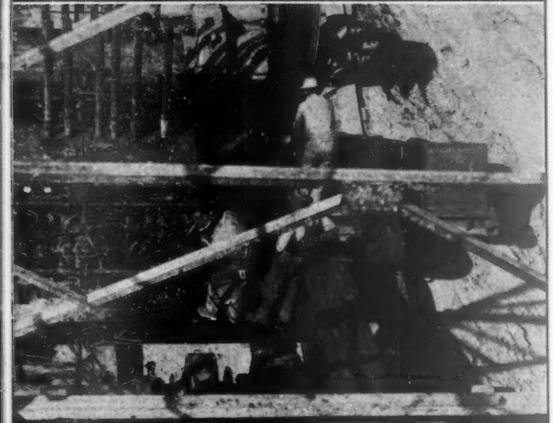
Most intensive drilling of the Illinois campaign followed discovery of Benoist sand production at Centralia by the Adams Oil & Gas Co. late in 1937. The discovery well, just west of Centralia in Clinton County, found Benoist sand at 1,347-84 feet and had initial yield of 156 bbls daily. Development continued southeasterly from the discovery and soon crossed the line into Marion County, taking in the west side of the city of Centralia. The townsite discovery well was drilled by the Adams company on the Hefter heirs' property in Section 13-1n-1w, with initial yield of 342 bbls. daily from sand at

*(Continued on Page 80)*

*modern camps and stations in the Illinois field*







# All Types of Find Work in

BY HARRY SIMONS

The increase of 281 per cent in the drilling and development in the Illinois basin area has been the occasion for the influx of a large number of rotary rigs and spudding units during the past year. From October 2, 1937, to September 29, 1938, active operations have gone from 126 to 355. At the start of the present activity, only a few scattered spudding machines were drilling shallow test holes. Rotary rigs from Oklahoma and Texas were imported for the deep tests by Pure Oil Co. with the intention of seeking production below the Mississippian lime. Rigs capable of going to 5,000 feet were selected as the operators had little previous knowledge of drilling conditions to be encountered.

With the spreading of interest to the shallower sand areas, lighter rotaries and unitized drilling machines were imported and spudding machines of all sizes began arriving. At the present time a large variety of drilling machinery is at work in Illinois, Indiana and Kentucky. These can be divided into groups as follows: Light rotaries designed by contractors and built in machine shops, light manufactured rotaries, portable drilling units with masts, light spudders, heavy spudders and heavy rotaries. Each of these performs an important unit in the drilling development in the Illinois basin.

### Light Rotaries

Many of the lighter rotaries were brought into the state by men who had gained some experience of the conditions in Illinois by drilling for companies owning larger rigs. These men found the door open for a contractor with a light rig designed for drilling 2,000-foot holes and which in an emergency could be used to drill to 3,000 feet. A great many knew of hoists designed for pulling units which were idle and which could be converted to rotary rigs by the installation of a rotary sprocket. Others had in mind the design for a light rig which would be suitable for the drilling conditions in the Patoka, Centralia, Lake Centralia, and Louden areas. Cost of the rigs was kept as low as possible as use of the minimum of machinery cut down the cost of moving. Drill pipe purchased in Texas and Oklahoma was, in some cases, considered unsafe for deeper drilling but could be used on shallow wells with comparative safety.

Small motors are used for driving the hoists on these rigs, one contractor using one Ford V-8 engine as the only prime mover. Others are using as much as a 90-hp. gasoline or Diesel engine for hoisting power and some are using two smaller motors, the Ford V-8 finding a great deal of favor. Use of smaller motors effects a considerable saving in fuel used per well. The motors are equipped when possible with extra heavy clutches as they receive considerable grief due to the fact that they are in most cases the only friction clutch on the drawworks drive.

A typical rig of the smaller class is owned by Petre & McCracken of Centralia, Ill. This rig was built to the design of the contractors in the plant of the Wilson Manufacturing Co. at Wichita Falls, Tex., and shipped to Illinois. The line shaft, drum shaft, and jack shaft were selected from discarded hoists and mounted on an A-frame built on skids. Drive of the drum is through a friction clutch for high gear and a positive jaw clutch for low gear. An extra heavy transmission and clutch were installed on the 90-hp. International gasoline motor. The transmission has a compound gear which doubles the number of gear selections possible; with six speeds on the jack shaft and two on the drum, a wide selection of speeds and power is available. However, the high drum clutch is used for only light loads as the single high-speed chain on the high gear is not adapted to heavy loads.

*View from above of small, shop-made drawworks and gasoline motor mounted on one skid for use in the Illinois shallow fields*

Drawworks and motor are mounted on one skid and the only preparation for moving is the sliding of the motor to the center to balance it and the removal of the head-board and tie down clamps. In operation, the motor sets in an unbalanced position to the right and while it is possible to move it in this position, there is some danger of the unit turning over while loading. The power pump for this rig is a 7-inch by 14-inch driven by a 100-hp. International Diesel motor. On its first job in Illinois this rig drilled a 3,500-foot well but

*Rotary drilling in Illinois. Reading down: 126-foot derrick in Lake Centralia field; old jack post hoist with single-barrel engine, used to drill wells in Centralia townsite; small hoist powered by two Ford V-8 engines, all mounted on one skid, used to drill wells in Centralia townsite; large 7½-M.B. rig capable of drilling 6,000 feet being rigged up on 1,750-foot well in Lake Centralia field*

# Drilling Rigs Basin Fields

since that time it has been operating with a great amount of success in the shallower areas.

### Steam Rigs

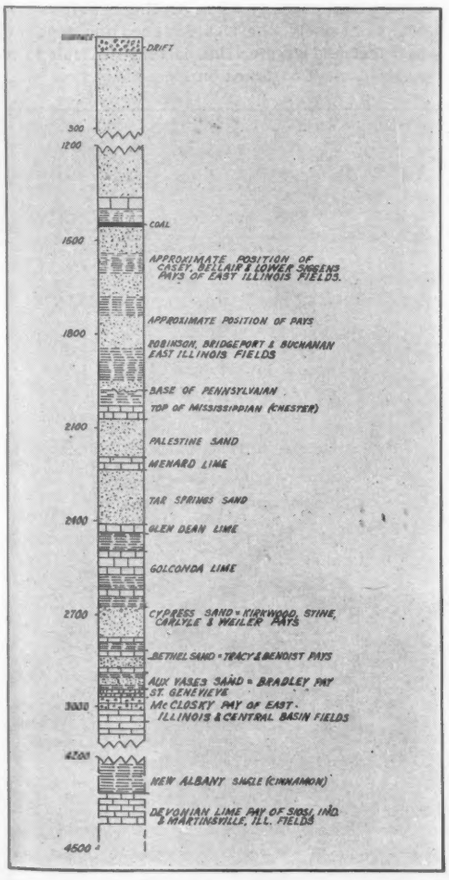
Due to the absence of a sufficient volume of gas for firing boilers and the lack of adequate convenient water supply, steam rigs have been at a disadvantage in the Illinois basin. However, some contractors who owned steam rigs and for various reasons did not prefer to mechanize them, have been using oil for fuel and buying water from trucks, the standard price for hauling water to the location being 12 cents per barrel. The Pure Oil Co. has its own water and gas system for the operation of its steam rigs.

An examination of the steam rigs in Illinois would reveal a practically complete history of steam drilling equipment. There are several 11- by 11-inch, single cylinder, flywheel type engines driving open, jack post drawworks of the "knee-buster" type. A few 10- by 10-inch and several 11- by 11-inch, twin-cylinder, open-type engines are being used, some on jack post and others on unitized drawworks. Several contractors have roller bearing, oil bath, twin-cylinder engines using wet steam and several modern steam-saving rigs have been in operation in Illinois from time to time. Pumps are as varied as the engines and hoists, ranging from 12 by 12 by 6¾ inches to 18 by 15½ by 7¾ inches; on the steam-saving rigs, power pumps driven by vertical steam engines are used. A rotary chain and a turn-buckle around the duplex pumps for safety reasons is not an uncommon sight. Boilers for the rigs are mostly small, only a few large high-pressure boilers being used; some rotaries are operating with only one 40-hp. boiler for steam generation.

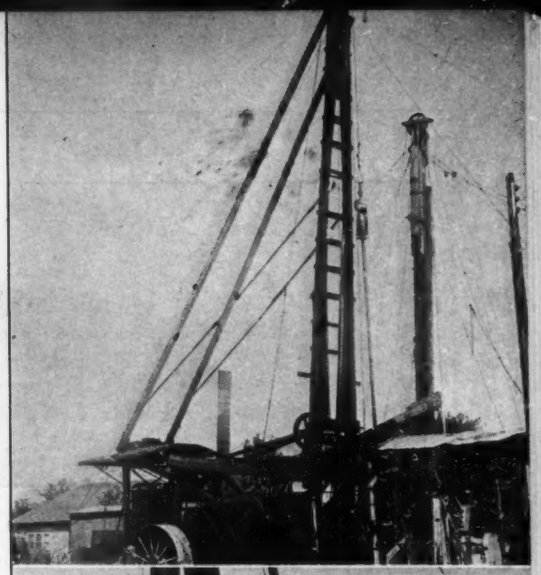
There have been a large number of light manufactured hoists purchased for use in the shallow sand areas and many of these rigs have been shipped into the state from Texas, Oklahoma, and Kansas. Some were originally drilling-in units in use in other fields and have been remodeled with the spudding attachment or beam removed and a cathead and rotary attachment installed. Those having two drums have found particular favor as they eliminate the necessity of removing the drilling line from the drum when it comes time to swab a well. All of these are powered with one internal combustion engine mounted on a skid with the hoist, the assembly making one unit. Engines vary in size according to the unit, 80 hp. being the smallest and 160 hp. the largest. Owners of this type rig and the machine shop made rigs can use them for clean-out strings on deeper wells after the shallow sand play has subsided. When operating at shallow depths they have a decided cost advantage due to the low fuel consumption.

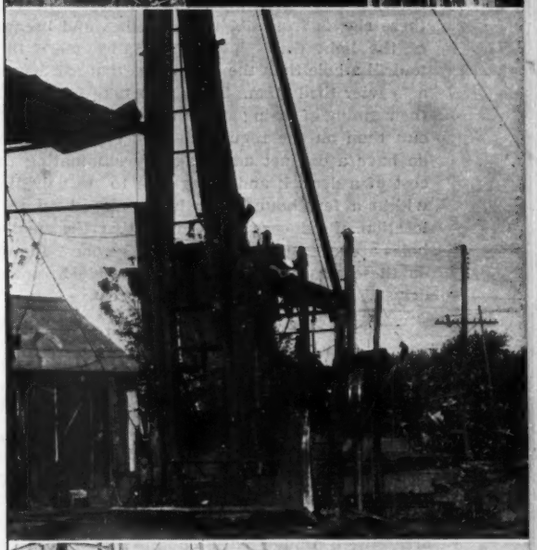
Pumps on the light manufactured rotaries are similar to those used by owners of the shop made rigs, with the exception that the motors used are for the most part slightly larger.

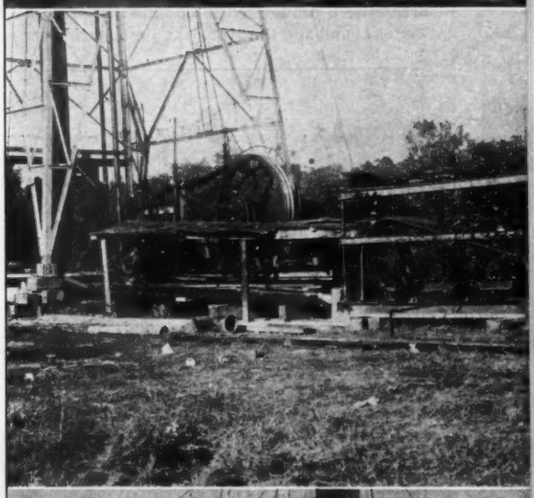
Nearly a dozen core drilling machines enlarged for drilling producing holes are in use in the Illinois basin. Some of these have the drawworks, engine, mast, and pump mounted on one truck bed while others have a separate pump unit that is carried from location to location by a winch truck. Several outfits employ trucks or trailers for the mounting of their drilling equipment, and are thus able to move without the hiring of any trucks. Drill pipe on these rigs is generally either 2½-inch or 3½-inch

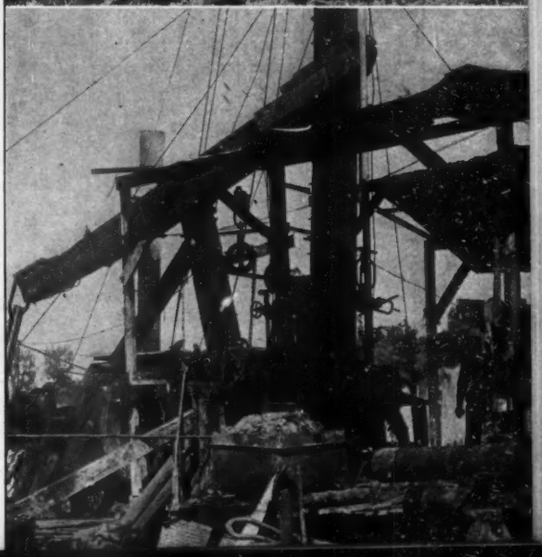



*Generalized geologic section of the Noble area of Richland County, Illinois, as given by R. W. McIlvain*

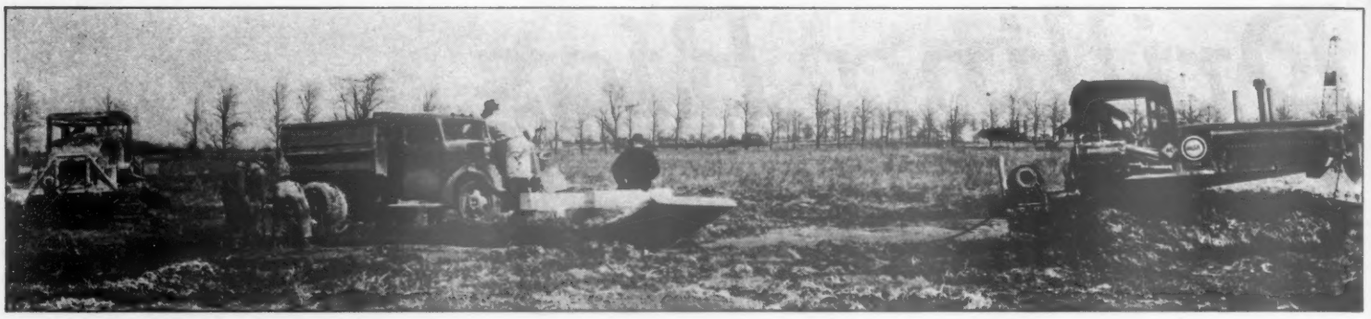








***Cable tool drilling in Illinois. Reading down: Five and one-half Keystone spudder driven by Buick motor completing well in Centralia; new Jensen spudder drilling its first well in Centralia with motor mounted on individual skid; standard rig driven through countershaft by internal-combustion engine completing well in Birdhaven field near Olney; steam-driven Star No. 30 spudder used to drill hole from surface in Centralia***



*Typical wet weather scene in Illinois. Dump truck being hauled into location on mud boat by tractor equipped with a winch*

external flush drill pipe. Size of hole drilled by these rigs is from 6⅛ to 7¼ inches and because of the light drill pipe they require more time to drill a hole than the larger rigs that can handle a heavier drill stem. Trips also take longer and the running of casing and other work is more difficult than on the regular derrick type rig. They do have a distinct advantage by eliminating the cost of a derrick and being able to start drilling within a few hours after being moved on to a location. Producers have found that the smaller holes are as easy to work in as large ones. Pumps on these rigs are generally 5- by 10-inch, power driven. Masts vary from 45 to 90 feet.

### Large Rotary Rigs

Large rotaries are confined mostly to the deeper portions of the basin but occasionally invade the shallower areas when either work is slack in the deeper areas, or the company doing the work happens to have one idle, or prefers to do its own work rather than hire a contractor with a smaller rig. This is the case at present where Kingwood Oil Co. is using two 7½ MB rigs in the Lake Centralia area where production is obtained from both the Benoist sand and the McClosky lime found between 1,750 and 2,000 feet. These hoists are capable of drilling wells to probably the deepest depths to be encountered in Illinois and were selected because of the large amount of wildcat work in prospect for them. They are completely roller bearing with 7½-inch shafts and have water-cooled drum flanges. The rest of the equipment is comparable to the drawworks, a heavy crown, traveling block, swivel and rotary table being used. Both of the derricks for these rigs are 126-foot structures. Two 185-hp. Waukesha motors can be compounded on either the drawworks or pump. Drive to the drawworks is through a heavy reversible clutch. Both of these rigs have dug several deep wildcats and will probably be used for more deep testing.

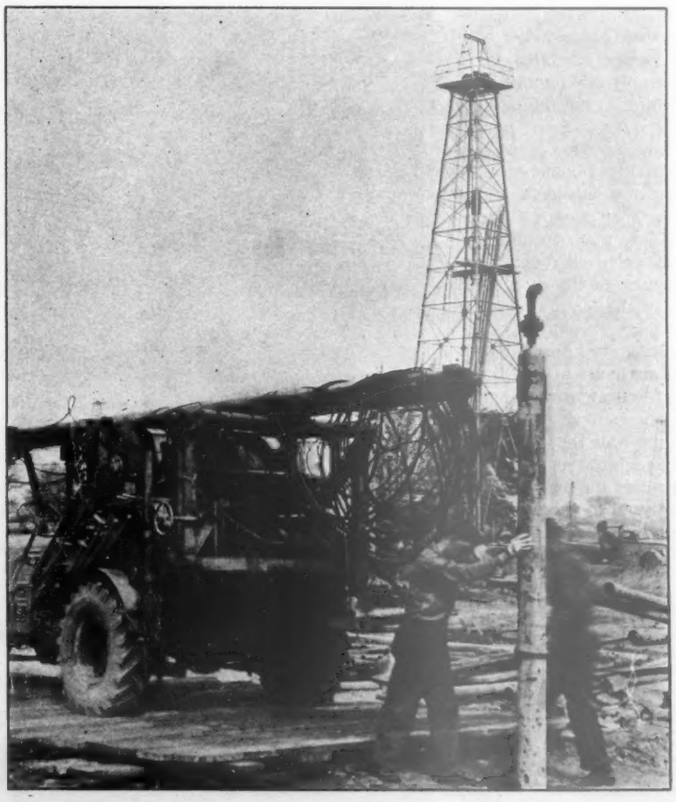
Most of the so-called heavier rigs are not as large or complete as those of Kingwood's for competitive reasons, many of the rigs having smaller hoists. A great many of these hoists had been used previously on steam rigs in the southwest and were motorized for the work in Illinois. There is a wide variation in the size and type of motors used, ranging from 160 hp. to 250 hp. Engines convertible to a variety of fuels are favored as the rigs are moved frequently and gas or distillates are not always available. Portable rigs capable of going to 4,500 feet are widely used, the drawworks and pump drives being through a chain transmission without a reversible clutch.

### Pump Sizes

Size of pumps and weight of derrick equipment vary widely, depending to a great extent on the material the one assembling the rig had at his disposal when shipping it into the state. For the most part, every effort is made to keep down the overall weight and the number of pieces due to the adverse moving conditions during wet weather. Many operators of rigs anticipated deeper drilling when they came into the state and adjusted their equipment so they could work profitably at the present depths and could easily enlarge the capacity of the rig when greater depths become necessary.

As yet no rig has been developed which could meet satisfactorily all the requirements of drilling in the basin due to the fact that a rig which can compete in the shallow areas would be operating at near total capacity when drilling a well to 3,000 feet. Conversely, the rigs designed for depths of 3,000 feet and greater find it very difficult to re-

*(Continued on Page 120)*



*The drilling crew starts to buck out the landing joint as soon as the spudder arrives*

*The driller elevates the mast as soon as the landing joint is out of the way*

# Service on New Fields

## LAKE CENTRALIA FIELD, MARION COUNTY, ILLINOIS

Compiled by The Oil and Gas Journal

**Approved name:**

This busy area is known variously as Lake Centralia field, Salem field and Texaco field. The Illinois Geological Survey lists it as Lake Centralia field. Company field scouts generally call it the Texaco field. Others, due to its proximity to the town of Salem, call it the Salem field.

**Geographic location:**

About 7 miles east of Centralia and 5 miles southwest of Salem in southern Marion County.

**Principal towns and cities near field:**

Centralia, population 12,600, 7 miles west; Salem, population 4,420, 5 miles northeast; Mount Vernon, population 12,800, about 12 miles southeast; St. Louis, Mo., 70 miles westward.

**Cities and towns where supply houses have branches:**

Practically every supply house active in the Illinois fields have stores or representatives at Centralia, Salem or Mount Vernon and serve the Lake Centralia-Salem district from those points.

**Railways serving the area:**

The Chicago & Eastern Illinois line runs east of the field, north and south from Salem to Mount Vernon. The Southern Railway runs southwest of the field from Centralia to Mount Vernon. Other nearby lines include the Illinois Central and Chicago, Burlington & Quincy at Centralia; Baltimore & Ohio and Illinois Southern at Salem; and Louisville & Nashville and W.C.&W.R.R. at Mount Vernon.

**Character of roads:**

Paved state Highway No. 37 runs southward from Salem to Mount Vernon, east of the field. State Highway No. 182, traversing the south end of the field, is paved from Centralia to its intersection with No. 37. These connect with other paved highways at Centralia, Salem and Mount Vernon. Some country roads in the field have been graded and graveled.

**Hotel and other accommodations:**

Hotels at Salem, Mount Vernon and Centralia generally are crowded, and it is advisable to make reservations in advance. Many of the oil men who cover the basin activity find hotel accommodations at Vandalia, Effingham, Mattoon and other towns within easy driving distance.

**Schools and churches:**

Good schools and churches in the nearby towns are comparable with those of similar American communities elsewhere.

**Development:**

The pool was opened at Texas Co. No. 1 Tate, NW NW Section 5-1n-2e, Marion County, July 6, 1938. It was drilled to 1,916 feet in McClosky formation, which was productive, but was plugged back to 1,810 feet and completed for initial production of 732 bbls. of oil from Benoist sand topped at 1,692 feet. Subsequent development has proven a productive area 4½ miles long from north to south and about 2½ miles wide. Definition of the field is a matter for future development.

**Completions to date:**

There had been 42 producing wells completed in the field as of September 28, and the number was being increased daily. These included some of the larger producers in the state, initial production generally ranging from 200 or 300 bbls. to more than 1,000 bbls. Several dry holes were recorded.

**Number of operations:**

There were 34 active locations at Lake Centralia, either drilling or rigging up.

**Future activity:**

Although some failures have been recorded, extent of the productive area has not been determined. Even if the field should be confined to present proven area, many inside locations remain to be drilled. It is expected, however, that the field is due for additional extensions, opening up new sectors to future development.

**Domestic water supply:**

Lake Centralia, nestling in the heart of the field, provides the domestic water supply for the city of Centralia and adjacent areas. Water in the field also may be obtained from dug wells.

**Type of drilling equipment used:**

This has been a rotary field from the start, the discovery well being drilled with a light portable rig mounted on a truck. Light rotaries are being used to set pipe and in a great many cases to complete the wells. Some spudders are being used for completion purposes. Practically all drilling machinery is powered by internal combustion engines.

**Derricks:**

There are a few 126-foot derricks in use, but for the most part operators are favoring the shorter 96-foot structures. Some wells are being drilled with masts.

**Fuel:**

While there is some gas in the area, gasoline, butane or Diesel oil is used by the drilling rigs.

**Size of hole and casing program:**

Procedure varies with the different contractors and different rigs. Short surface strings of 10-inch pipe (generally under 100 feet) are set. A few wells have carried an 11½-inch hole to the top of the sand and cased the hole with 8¾-inch casing. Most widely used is the drilling of 12½-inch surface hole, setting 10-inch surface string, and then drilling an 8¾-inch hole to top of sand and setting 7-inch pipe. The portable mast rigs are mostly drilling smaller holes and running smaller pipe.

**Type engines:**

The size of the engines used on the drilling rigs varies widely.

*(Map Page 73, Continued on Page 74)*

FROM

# *Michigan Crude*

The makings were right there all the time McClanahan Refineries, Inc St Louis, Michigan, brought them out and put them together

McClanahan has harnessed Dubbs reforming and U. O. P. catalytic polymerization into a team that is making a hitherto unheard-of product from Michigan crude

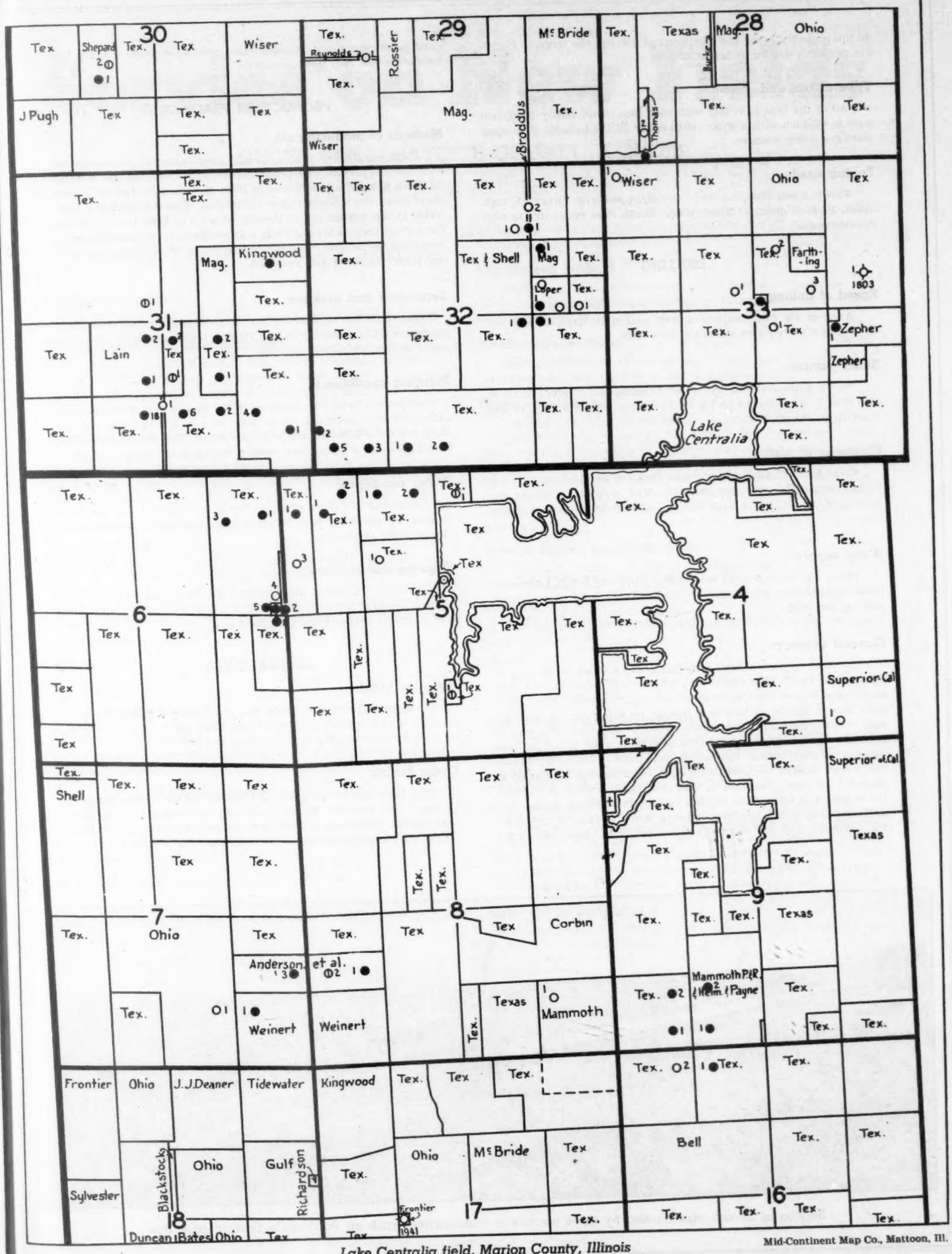
It's a 75-octane gasoline—without any benzol and without any lead They're featuring it in addition to their regular 70-72 octane gasoline

Do you know any other processes that can give you such results from Michigan crude?

NOTE: The royalty rate for Dubbscracking is now 5 cents per barrel throughput For reforming it's 2 cents If you want to know the rate for U. O. P. catalytic polymerization—and what it will do for you—the answer is yours for the asking

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor




*Lake Centralia field, Marion County, Illinois*

Mid-Continent Map Co., Mattoon, Ill.

40 hp. probably being the smallest and 180 hp. the largest. Pumps are generally driven by larger motors.

**Type of bits and stems:**

All of the hole is drilled with rock bits. Most widely used drill stem is 4½-inch with a 30-foot drill collar on the bottom. Few operators are using reamers.

**Tubing used:**

Flowing and pumping wells are equipped with either 2½-inch upset, 2½-inch plain, or 2-inch plain tubing. Size varies due to well requirements.

## DRILLING

**Speed of drilling:**

Average rig can complete a well within 10 days on and off. Setting of pipe requires about six days' time.

**Slush pumps:**

Power pumps driven by internal-combustion engines vary in size from 5 by 10 inches to 7¼ by 14 inches. Engines vary in size from 75 to 180 hp.

**Character of mud:**

From 10 to 15 sacks of artificial mud are required to start the wells through the drift and set pipe. Mud is built up during the drilling of the wells to a weight of 10.2 and viscosity of 38 at casing time.

**Water supply:**

Water for drilling fluid is obtained from dug wells, Lake Centralia, or hauled to the location by truck. There is no water system serving the field.

**General geology:**

The field overlies a large anticline about 6 miles to the east of the fault in the DuQuoin anticline, which runs approximately parallel to the Illinois Central Railroad through Centralia. Many operators looked lightly on this area despite its being on the upthrow side, because the subsurface strata slopes to the east. The area is generally gently folded, however, and this large structure was selected for prospecting. Production from most of the wells is from the Benoist sand of the Chester series of the Mississippian topped at around 1,700 feet. The sand in this area varies widely in porosity but is generally softer than in most of the other Illinois fields. The McClosky lime is also productive, being found at around 1,900 feet. The discovery well was originally drilled to the McClosky and found good production there. Several other wells have found that the lime formation has very good porosity.

## PRODUCTION PRACTICE

**Methods of producing oil:**

Wells are allowed to flow through open tubing as long as storage facilities will permit. Production is somewhat restricted due to outlet facilities being limited. There is little gas pressure and in a great many cases the separators are eliminated. There is probably some water in the bottom of the Benoist which will keep the oil moving for a short time. Flowing wells will probably hold up better in the sand than in the lime wells, but pumps will probably come into wide use before the field gets very old.

**Separators and tankage:**

One separator is used for the well. Tankage varies with some operators using a battery of two 210-bbl. tanks, and others using as many as five high 500-bbl. tanks.

**Pumping conditions:**

No powers have been installed in the field as yet. There is some indication that electrical power may be used for operation of the jacks when the wells need to go on the pump. This will eliminate the hauling of fuel to pump jack motors during wet weather.

**Water conditions:**

Little evidence of water as yet, but it is admittedly present. The Benoist has generally been found to carry salt water in the bottom layers of the formation.

**Shooting and acidizing:**

The wells are tested first and then shot as an aid to production when necessary. Shooting of the wells is done with some trepidation due to danger of damaging the casing seat.

## GENERAL DATA

**Gasoline plants:**

No gasoline plants are being planned for the immediate future as there is only a small amount of gas. Such gas as is present may be used for repressuring and recycling at a later date.

**Outlet for oil:**

Pipe lines are in operation to Odin and Sandoval for shipping by trunk line and rail. Some oil is being hauled from the field by tank trucks. Texas Co. is starting work on a line from the field to its plant at Lawrenceville.

*Section of 22-inch pipe carried by three tractors in construction work on Panhandle Eastern pipe line*

# Service on New Fields

## LOUDEN FIELD, FAYETTE COUNTY, ILLINOIS

Compiled by The Oil and Gas Journal

**Approved name:**

Louden oil field. (Also called Beecher City field and St. Elmo field.)

**Geographic location:**

About 10 miles northeast of Vandalia, eastern Fayette County.

**Principal towns and cities near field:**

St. Elmo, population 1,329, 2 miles east; Vandalia, population 4,342, 10 miles southwest; Effingham, population 4,978, 18 miles east; Altamont, population 1,225, 8 miles east; Chicago, 230 miles. 1930 census figures.

**Cities and towns where supply houses have branches:**

Several supply houses are in St. Elmo, nearest sizeable distributing point to the field. Supply houses not having stores in the field have stores or representatives at Vandalia, Effingham, Centralia and other nearby points.

**Railways serving the area:**

The Baltimore & Ohio line from Springfield to the southeast runs east of the field, through St. Elmo. The main line of the P.C.C. & St. L. R.R. runs south of the field, through Vandalia, St. Elmo and Effingham. The N.Y.C. & St. L. R.R. runs north of the field. The Chicago & Eastern Illinois line runs south and east of the field. The Illinois Central runs west of the field. A branch of the Wabash system terminates at St. Elmo.

**Character of roads:**

St. Elmo is on U. S. Highway No. 40, a main route from St. Louis, Mo., to Terre Haute, Ind. State Highway No. 128 provides a north-south paved outlet. Some company roads are being built in the field.

**Trucking companies:**

Trucking contractors are located at St. Elmo, Vandalia, Effingham and Altamont.

**Hotel and other accommodations:**

Hotels throughout the area generally are crowded and it is advisable to make reservations in advance. Vandalia and Effingham provide the largest nearby hotels, although small and comfortable hotels are at Altamont and St. Elmo.

**Domestic water supply:**

City systems of nearby towns provide water for domestic purposes; in the field, water is obtained from wells or lines are laid and it is pumped from nearby streams.

**Electric power and gas companies:**

Purchased electric power is available; some companies have installed their own electric systems. Wood and coal are used for domestic heating.

**Schools and churches:**

This is an old, well-settled area with schools and churches common to a prosperous farming community.

**Developments:**

The discovery well, Carter Oil Co. No. 1 Miller, C W half NW NW Section 12-8n-3e, was completed December 20, 1937, in the "Niagaran" formation at 3,100 feet, total depth, for initial yield of 57 bbls. of oil in 17 hours, and later was plugged back. On December 31, 1937, the Carter Oil Co. No. 1 Clow, Section 15-8n-3e, found Benoist sand at 1,497 feet and was completed at 1,503 feet, total depth, for initial yield of 200 bbls. of oil, estimated. Development generally has extended south and west from the discovery wells, production being found as far south as Section 31-7n-3e.

**Completions to date:**

There were 114 completed wells in the field as of September 28, and wells were being completed at a rapid rate. Five failures had been recorded.

**Number of operations:**

Approximately 100 operations were under way in the Louden area, ranging from locations to near completions.

**Future development:**

Carter Oil Co. is by far the largest leaseholder in the field. That company had about 90 active operations in the area. Where conditions warrant, it is drilling two wells to each 40 acres and is urging that method of spacing throughout the area. Proven limits of the field assure a long-time drilling program. The area extends from the farthest northeast producer in NW Section 12-8n-3e to the farthest southeast producer in NW Section 31-7n-3e. Further extensions are expected.

**Type of drilling equipment used:**

Light-duty rotary rigs powered with gasoline or Diesel motors are used.

**Derricks:**

Mostly 96-foot derricks are used. Some rotary outfits are operating with masts.

**Fuel:**

Most of the mechanized rigs are using Diesel oil for fuel, but several are using gasoline or butane.

**Size of hole and casing program:**

An 8¾-inch hole is drilled to the top of the pay and 7-inch O.D. pipe used for casing. Some wells are drilled without surface casing, but in operations where surface string was necessary 10-inch pipe was set in 11½-inch hole.

**Type engines:**

Gasoline or Diesel engines varying from 60 to 180 hp. are used. A wide range of hookups is in use. Most popular is about 100 hp. engine and drawworks, and a slightly larger one on pumps. For the most part, these are in separate units but some rigs are arranged for compounding of motors for pump or drawworks use.

**Type of bits and stems:**

Entire hole drilled with rock bits. The majority of operators use 30-foot drill collars on 4½-inch drill pipe.

**Tubing used:**

Tubing size varies from 2-inch plain to 2½-inch upset.

**Speed of drilling:**

This varies from location to location, usually about one week on and off for rotary rigs setting pipe, 10 days is required to drill hole, set pipe and complete. Cable tool completions require about a week.

**Character of mud:**

About 9.4 pounds a gallon mud, 32 viscosity, is used for drilling through drift, with the mud being increased to 10.2 pounds a gallon and 38 viscosity for setting pipe. Holes stand up fairly well with only slight additions of artificial material.

**Slush pumps:**

These vary in size from 7¾ inches by 18 inches to 5 inches by

10 inches. Most commonly used size is 6¾ inches by 12- or 14-inch stroke.

### Water Supply:

Only water for drilling fluid required. Dug wells of less than 200 feet and local streams and ponds supply requirements.

### General geology:

Anticlinal fold with the west flank dipping steeply, while the east side is more gentle. Discovery well drilled to the "Niagaran," showed as a small producer, and plugged back to Benoist (Bethel) sand at 1,500 feet. The Weiler (Cypress) sand also contains production on structure, but lenses out on the west side of the field. Both of the present pay sections are in the Chester series of the lower Mississippian. Porosity in both the Weiler and Benoist varies, as does the permeability. The Weiler has a pay section of approximately 25 feet and the Benoist about 20 feet.

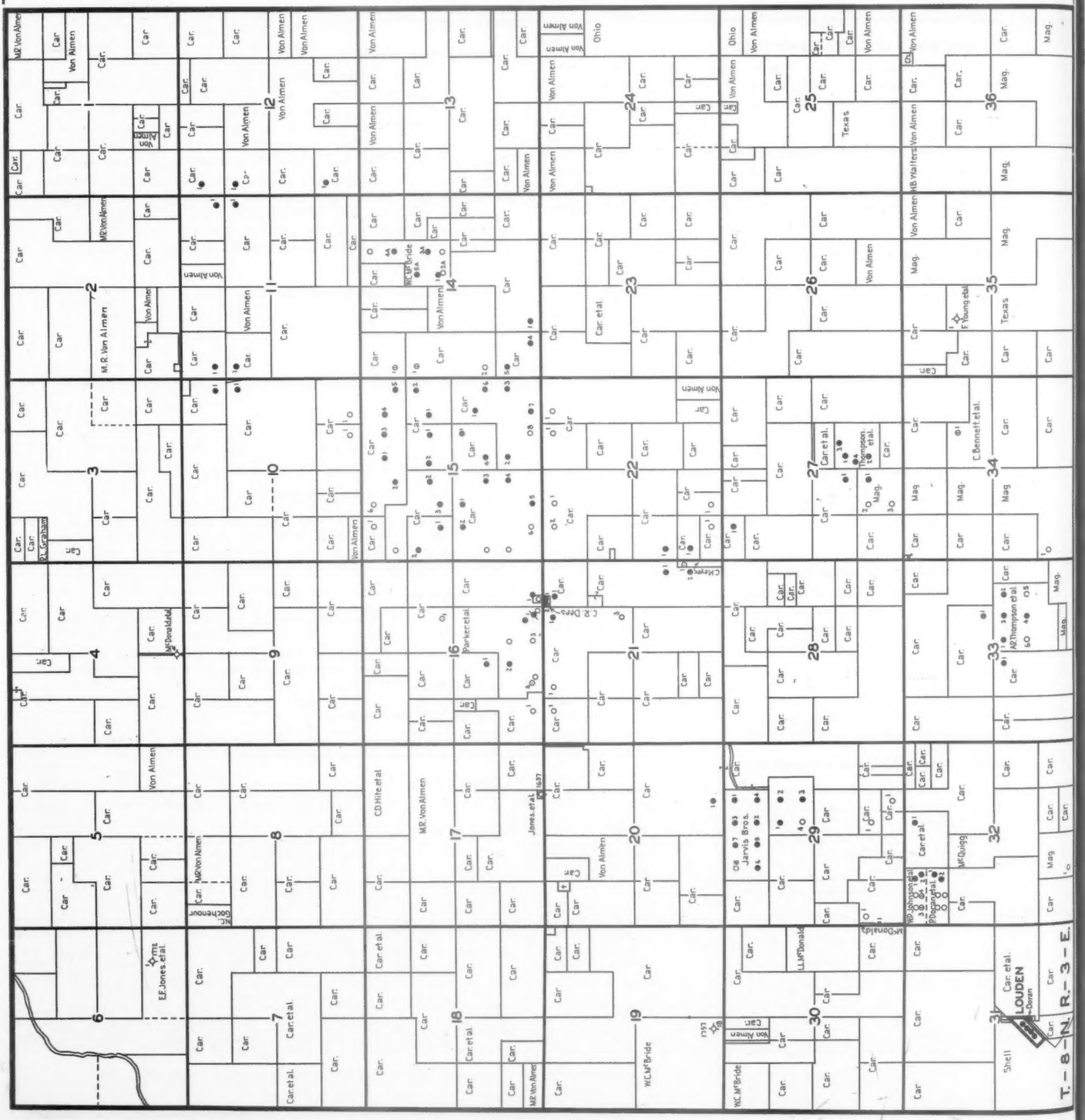
## PRODUCTION PRACTICE

### Methods of producing oil:

Proration is nonexistent but the larger companies in the field are endeavoring to produce the oil along the best, practical conservation lines. Wide range of sand conditions affects individual well treatment. Casing pressures average 500 pounds initially and tubing pressure is generally around 150 pounds. Reservoir carries some gas, although some observers believe it to be in single phase with the oil. Oil is produced through tubing except where both sands are being produced from one well, and then casing is utilized for production from one of the sands. Most wells are put on the pump soon after completion.

### Separators and tankage:

A majority of wells have separators, with some of the smaller operators omitting the separators. No large amounts of oil are ac-



cumulated on the leases and tankage ranges from two 210-bbl. welded tanks to batteries of six 250-bbl. bolted tanks.

### Pumping conditions:

Individual jacks powered by either electricity or small internal combustion engines are used to pump the wells. No powers are in use as yet. One company has installed stations for generating electric current for its pumping requirements.

### Water conditions:

Water is believed to be present in the lower Benoist formation but seems to be absent in the Weiler zone. Care is taken not to drill the wells deep enough to encounter the water at the base of the Benoist. The water level is undefined as yet.

### Shooting:

Wells are tested and then shot with nitroglycerin, the charges varying from 20 to 50 quarts. Heavy sand tamping is used on the larger shots. Perforating guns were used to shoot the Weiler in combination wells, but the newer practice is to shoot this formation with nitroglycerin also.

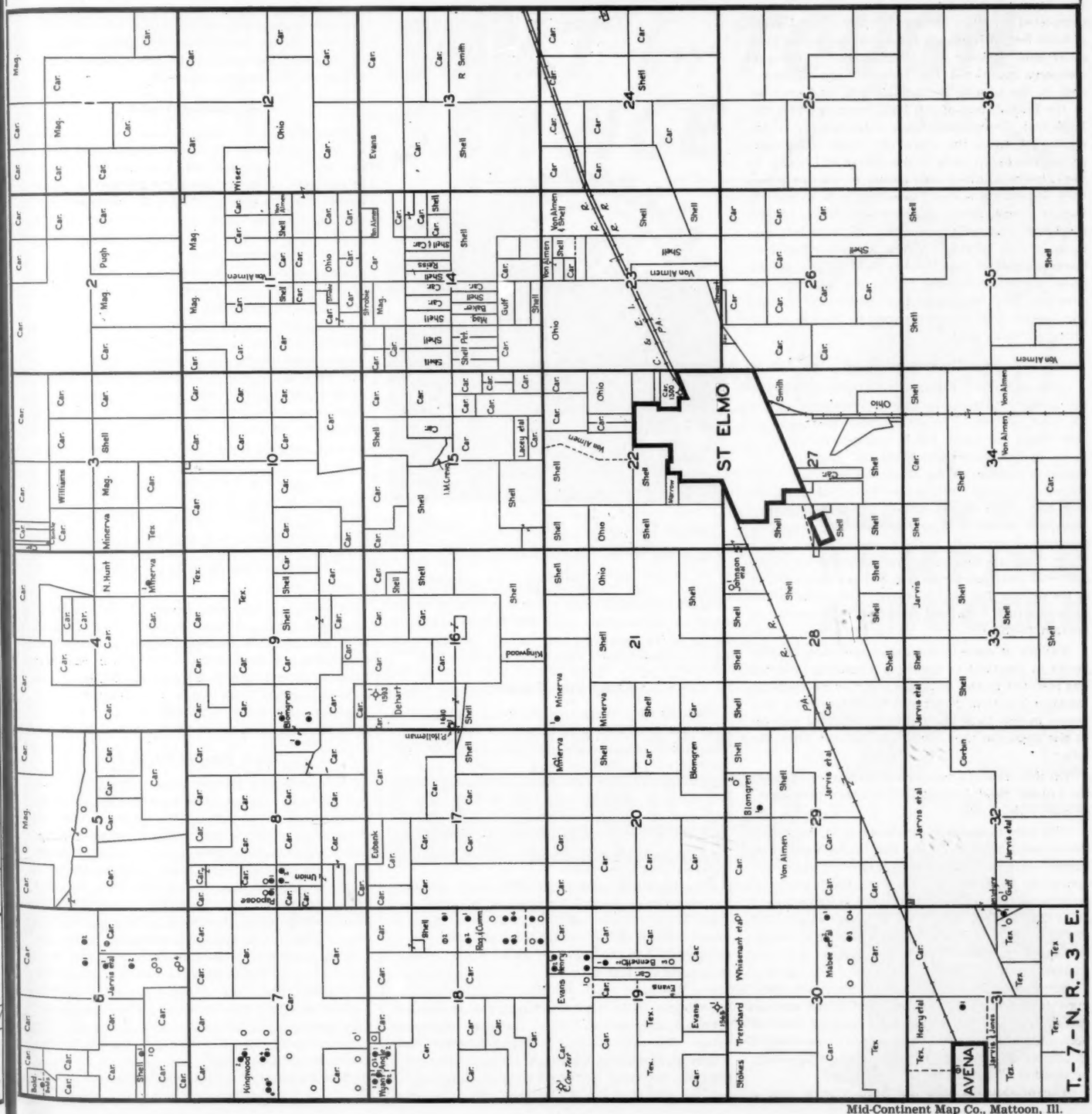
## GENERAL DATA

### Gasoline plants:

While only a small amount of gas is produced, one company already is installing a repressuring-recycling plant. No plants for manufacture of commercial gasoline have been announced, however.

### Outlet for oil:

Globe Oil & Refining Co. is operating a 3,000-bbl. refinery at St. Elmo and taking oil from independent producers. Oklahoma Pipe Line Co. (Carter Oil Co.) recently completed a line from the field to the Illinois Pipe Line Co.'s line and is taking ratably from the field. The six railroads serving the district are close enough to the field to provide additional outlets for the oil.




Mid-Continent Map Co., Mattoon, Ill.

## DRILLING PROGRAM

*(Continued from Page 65)*

1,350-70 feet. This started a rush of townlot leasing and drilling, which was curbed somewhat when the city council passed an ordinance limiting wells to two to the acre.

By the end of September some 485 wells had been completed in the Centralia pool, with daily average flow of 20,667 bbls., which was the largest production from any single area in the state. Limits of the pool are thought to have been defined. most of the locations have been drilled, and only 9 or 10 tests were under way on the townsite early in October.

The Louden field in Fayette County primarily is a 1938 development, the numerous extensions of this year giving some idea of its ultimate size. It was opened last December 20 when Carter Oil Co. completed a well in Section 12-8n-3e at total depth of 3,100 feet in Niagaran formation for initial yield of 57 bbls. It later was plugged back. The same company completed the Benoist sand discovery well in the area in Section 15-8n-3e on December 31 for initial yield of 200 bbls. from pay at 1,497-1,503 feet. Development has extended far to the southwest from the discovery wells, diagonally across Township 8n-3e to the village of Louden, in the extreme southwestern corner of the township; then southward across Township 7n-3e to the village of Avena, in the southwestern corner of that township; and westward across the line into Sections 12 and 13-7n-2e. A new area also has been opened south of the Louden field in Section 30-6n-3e, where Stein sand production has been uncovered. This ultimately may be connected with the Louden field proper or may be proven an entirely different pool.

### An Undefined Field

Although a few failures have been recorded in the Louden district, the productive limits of this big field are yet to be determined. In the meantime there are many inside and proven locations to be drilled. The Carter Oil Co., biggest leaseholder in the district, has about 100 wells at various stages of drilling. Where not forced to do otherwise because of offsets drilled by competing operators, the Carter company is following a spacing program of two wells to the 40 acres on its Louden block, with one repressure well to be drilled in the center of each quarter section and one in the center of the section. The first repressure well to be drilled in accordance with this program is in center of Section 15-8n-3e.

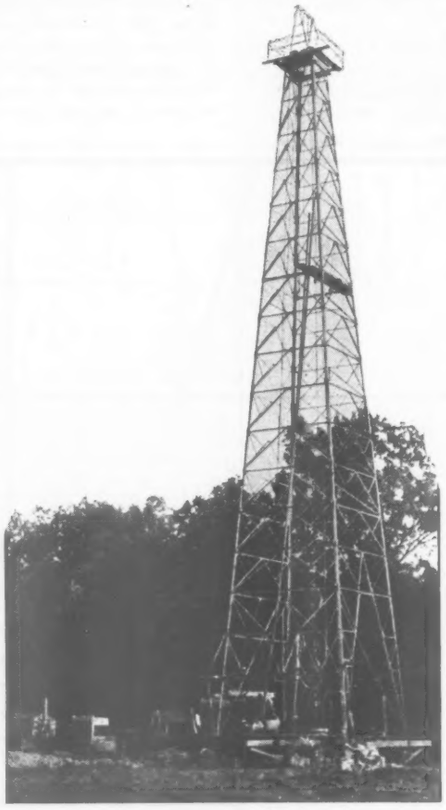
Failure of some of the other operators holding leases in the field to agree on a spacing program has resulted in the drilling of numerous wells on tracts of less than 20 acres. Ownership maps elsewhere in this issue show other owners of acreage in the field together with development as of October 1.

On that date 114 completed wells were listed in the Louden field, having daily average production of 9,960 bbls. of oil.

The third major sand development of the year is that around Lake Centralia and in the vicinity of Salem, Marion County. This important field was opened by Texas Co. at No. 1 Tate, Section 5-1n-2e, on June 30, last, with a 732-bbl. well in Benoist sand at 1,752-1,810 feet. The discovery well was drilled to McClosky lime, where oil saturation was found, but operators plugged back to complete it in the shallow sand.

Subsequent development has been rapid, proving this to be the richest sand pool in the state to date, initial yield of some wells ranging to 1,500 bbls. daily and upward. The October 1 report listed 42 completed wells in the pool with average daily production of 8,834 bbls.

The production area has been proven over a district some 4½ miles long from north to south and 2½ miles wide. The field has been extended northward to about 2 miles west and 1½ miles south of Salem. A failure was recorded in SE quarter Section 36-2n-1e, on the west side of the field; this and a structural dip to that side indicates a limitation. Some wells on the east side are running low structurally, indicating development will not be carried much farther in that direction. A test in Section 17-1n-2e, drilled by Frontier Oil Co. on a Fairview School tract, was dry at 1,941 feet, and a



*Pyramid Oil Co. No. 3 University of Chicago, on Birdhaven lease near Olney*

Texas Co. well in Section 16-1n-2e failed to find Benoist sand, indicating possible definition of the southern limits of the pool. The field is wide open at the north, however, and there is no indication how far development may go in that direction.

### Three Pay Horizons

Benoist sand in the area generally is productive at around 1,700 feet, some edge wells being deeper. The Aux Vases sand also has been shown to have productive possibilities, and McClosky lime at around 1,900 feet has been proven productive but is not being produced yet. Development of these horizons may be expected after the Benoist pool has been defined and drilled up—all of which means there yet is much to be done in the busy Lake Centralia-Salem-Texaco field.

The Texas Co., principal leaseholder in the field, has about 40 active drilling wells in the field, and other operators were drilling some 45 or 50 additional tests in the immediate district. Other tests being drilled in the general area brought the total to around 150 active operations early this month. There has been much forced drilling, because of wells being drilled on tracts ranging from one-half acre to 5 acres and on several 1-acre school-ground leases. Ten-acre spacing is being followed elsewhere on the Texas Co. block, that operator drilling only necessary or forced wells at this time.

The rush of work at Centralia, the Lake pool, and Louden has greatly overshadowed operations in other sand pools in recent months, but an active lease and drilling play continues along the DuQuoin anticline. This is a well defined uplift, ranging from just west of the town of DuQuoin, in southeastern Perry County, northward across the eastern edge of Washington County, veering across the third principal meridian at Wamac, adjoining Centralia on the south, thence northward in western Marion County to Sandoval, where it was once thought to terminate. Discovery of the Patoka pool showed an extension 10 miles northward, however, and now the possibility arises that it may be connected with the Louden pool in the vicinity of Avenna, some 15 miles to the northeast. There has been and will be much activity along this anticline, both to the north and south of the Centralia area, as operators seek further extensions and pools. Washington, Perry, and possibly Jackson and other counties to the south will be explored for oil within the next two or three years, it appears. The area to the north between Patoka and Louden will, of course, be thoroughly explored.

### A Parallel Trend

Another popular trend, if such it may be called, is that paralleling the DuQuoin anticline to the east and including the Lake area and the Dix pool in northern Jefferson County, a Carter Oil Co. discovery last December. The areas between those two pools, to the south of Dix in Jefferson County and north to the Lake pool in the vicinity of Salem, will be a busy sector during the coming year.

Over on the east side of the basin, in the vicinity of Olney, Clay City, Fairfield, and other centers, the search for McClosky lime production goes forward steadily and, on the whole, successfully. This activity is generally more conservative and leisurely than that in the Benoist pools to the west. The wells are deeper, and it takes longer to complete them, and the drilling cost is greater than that of the shallow wells to the west. The initial production of the lime wells, however, is much greater, ranging from 1,000 to 3,000 bbls. daily, or more.

Discoveries of the year in the eastern district, where the Illinois campaign received its first major boost with important strikes of 1937, include the Aden or Barnhill pool in southern Wayne County, Olson and Flora pools in Clay County, the Schnell pool in Richland County, and the Fairfield pool in Wayne County.

A new area has just recently been opened in the Olney sector at Pure Oil Co. No. 1 Wakefield, C W half NE NE Section 24-4n-9e, northwest of Olney and northeast of the Noble pool in Richland County. After failing to produce in McClosky lime at total depth of 3,003 feet, it was plugged back to 2,583 feet and swabbed 330 bbls. of oil in 24 hours from Cypress sand.

### Town Play at Olney?

A townsite play looms at Olney. The Olney pool, just north of that city, has been one of the more active areas in recent months with activity approaching the north city limits. Burgher & Kingwood drilled the discovery well in Section 27-4n-10, completed for initial daily yield of about 100 bbls. of oil daily. Three offsets were dry. Then Pyramid Oil Co. completed a producer in C N half NW NW Section 26-4n-10e to give the field its big play. The proven area now is about 1½ miles long from east to west and 1 mile wide from north to south. Production is from McClosky formation at around 2,900 feet, with initial yields ranging from 250 bbls. to 1,200 bbls. Both the Texas and Ohio companies have acreage in this sector. The Texas Co. just recently completed a 650-bbl. well only 300 feet beyond the north city limits.

The Pure Oil Co., with a tremendous block of

*(Continued on Page 85)*

acreage in the Olney district, is going about the development of its properties conservatively, based upon a 10-year program. Previously successful in opening the Clay City, Cisne, and other producing sectors, it may be expected that this company will find additional pools on its tract as development progresses.

Work has gone forward uninterruptedly this year at Clay City and in the other proven eastern areas. The October 1 report showed 167 wells in the Clay City area with daily average production of 16,937 bbls.; some 13 wells at Cisne with 3,517 bbls. daily; 26 wells in the Fairfield area with 2,652 bbls.; four wells in the Flora pool with 321 bbls.; one 27-bbl. well in the Ina pool; 144 wells with daily yield of 7,385 bbls. at Noble.

**ILLINOIS COMPLETIONS AND PRODUCTION SINCE JANUARY 1, 1937**

| | | | Production (Thous. of barrels) | | |
|---|---|---|---|---|---|
| 1937— | Completions | Wells | New fields | Old fields | Total |
| January | 5 | 1 | .... | 368 | 368 |
| February | 6 | 6 | .... | 343 | 343 |
| March | 9 | 5 | .... | 410 | 410 |
| April | 15 | 8 | .... | 386 | 386 |
| May | 14 | 10 | .... | 416 | 416 |
| June | 22 | 16 | 53 | 410 | 463 |
| July | 27 | 18 | 120 | 410 | 530 |
| August | 49 | 31 | 266 | 408 | 674 |
| September | 92 | 63 | 452 | 397 | 849 |
| October | 76 | 56 | 520 | 392 | 912 |
| November | 73 | 41 | 592 | 398 | 990 |
| December | 61 | 37 | 755 | 330 | 1,085 |
| Total | 449 | 292 | *2,884 | †4,542 | 7,426 |
| 1938— | | | | | |
| January | 57 | 40 | 772 | 356 | 1,128 |
| February | 59 | 35 | 760 | 348 | 1,108 |
| March | 107 | 82 | 940 | 390 | 1,330 |
| April | 89 | 71 | 988 | 400 | 1,388 |
| May | 122 | 107 | 1,040 | 400 | 1,440 |
| June | 192 | 147 | 1,035 | 427 | 1,462 |
| July | 176 | 136 | ‡1,242 | ‡400 | 1,642 |
| August | 207 | 150 | ‡1,500 | ‡400 | 1,900 |
| September | 268 | 206 | 2,157 | 362 | 2,519 |
| Total | 1,277 | 974 | 10,434 | 3,483 | 13,917 |

*This figure is greater than the total by months because monthly production figures from the new fields were not available until June 1937.
†Difference between total production for the new fields and the U. S. Bureau of Mines total for the year.
‡Estimated.
The figures in the total production column are from the U. S. Bureau of Mines; other figures are from various sources, compiled by the Illinois State Geological Survey.

The activity in Illinois by no means is confined to the two major eastern and western producing areas. Drilling activity to the two major eastern and western producing areas. Drilling activity was reported in 47 counties in September, ranging from Massac County in the far southern end of the state, northward as far as Champaign County and northwestward to Warren County.

In that extensive area a total of 674 operations was reported during September, including 268 producing oil and gas wells and dry holes, 37 rigs and 319 drilling wells as of October 1. The active rigs and drilling wells as of the latter date were divided among the counties as follows:

### In 47 Counties

Bond, 2; Cass, 1; Christian, 1; Clay, 29; Crawford, 1; Coles, 3; Clark, 2; Clinton, 46; Cumberland, 2; Champaign, 2; Dewitt, 2; Edwards, 1; Edgar, 4; Effingham, 1; Fayette, 109; Franklin, 2; Fulton, 1; Gallatin, 1; Hamilton, 2; Jasper, 1; Jefferson, 10; Johnson, 1; Lawrence, 10; Massac, 1; Madison, 2; Marion, 65; Macoupin, 1; Menard, 2; McDonough, 3; Monegomery, 2; Morgan, 1; Piatt, 1; Pope, 1; Randolph, 3; Richland, 13; Saline, 1; St. Clair, 1; Shelby, 4; Washington, 4; Williamson, 1; Wayne, 12; White, 1. Counties in which active drilling was conducted during the month but which had no tests going at the end of the month were Brown, 1 dry; Jackson, 1 dry; Perry, 1 dry; Warren, 1 dry, and Wabash, 1 dry.

The picture changes rapidly in the Illinois field, so by the time this is in print those figures may be altered considerably, with the probability that even more operations may be under way than on October 1. The approaching winter season is expected to curtail activity in the field somewhat, but spring will bring the seasonal revival.

The big leasing campaign may have passed its zenith, at least so far as the major companies are concerned, and many observers predict the play will have subsided materially by the end of another year. Even so, many small tracts in and around the big blocks are yet unleased. These tracts and acreage in outlying counties that have not attracted the big companies will provide happy hunting grounds for independent lease men for many months.

The big activity of the future, however, will be in the field. The major operators now are concerned with developing their acreage under lease. This development, in some instances, may extend over a period of 10 years. Independent operators and wildcatters will be busy attempting to prove their holdings for production. Additional discoveries undoubtedly will be made; possibly more major fields will be found. It will take several years to test adequately, prove, or condemn the thousands of acres now leased. Additional pay zones may be uncovered in the proven pools, and horizons yet unproductive may be found to contain oil. Deep production probably will be developed in the shallow sand areas, and shallow production may be found in the McClosky fields. Indeed, this already is true of some of the proven sectors. And below present producing zones are deeper formations, such as the St. Peter sand, still inconclusively tested or not tested at all. It all adds up to a long program of development ahead for the widespread Illinois oil field.

### Carbon Black Project Being Considered in Alberta

CALGARY, Alberta.—A company is being organized to manufacture carbon black from gas produced by shallow wells at Craigmyle, Alberta. Canadian carbon black imports in 1937 amounted to 17,171,885 pounds valued at $719,631.


BUILT for TOUGH SERVICE

IXL

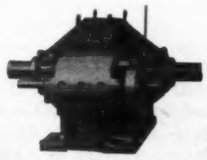
The Mark of Quality

For years, Bulldogs have been bred and raised for one purpose — to "hang on" no matter what odds were against them. Similarly, IXL Oil Well Pumping Reducers have gained a reputation for being tenacious — because they never "let go" even under the terrific strains and loads that occur every day in oil field service, where the going is tough! Service like this is not a matter of chance — it is the result of sound engineering and practical application in designing and building IXL Oil well pumping units specifically for the oil industry.

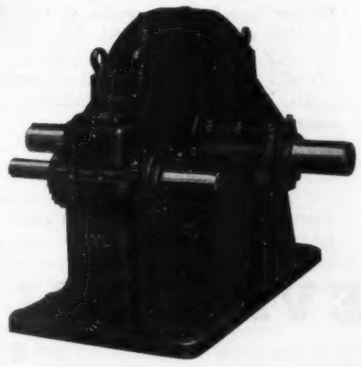
Over 77 years of specialized gear manufacturing experience is your guarantee of utmost satisfaction with every product that bears the famous IXL trademark.

Send for the new Bulletin No. 404. It will help you select the proper drive for your particular job. No obligation. Write today!

IXL OIL WELL PUMPING REDUCERS



Single and Double Reduction 1½ to 65 H.P.



FOOTE BROS. GEAR & MACHINE CORPORATION

5306 So. Western Blvd., Chicago

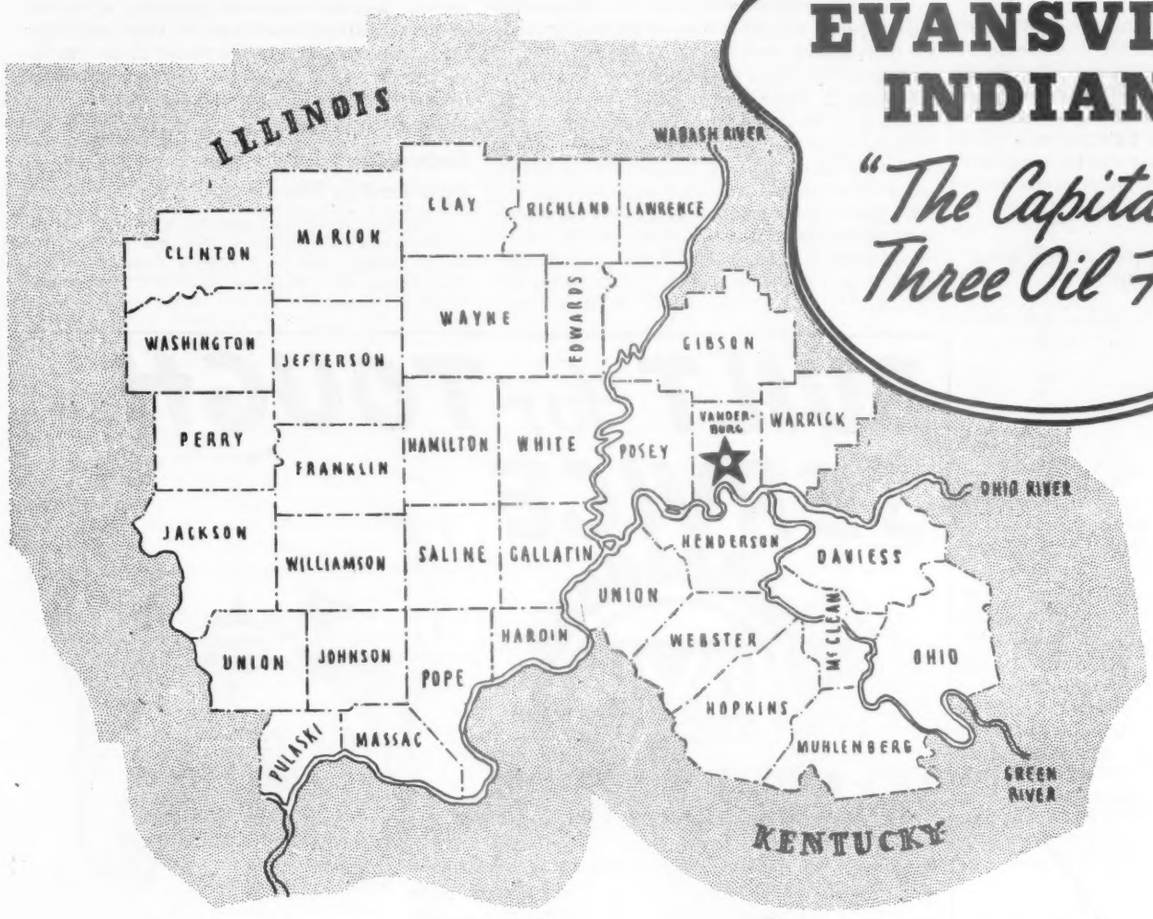
*Illinois Stores*
FRICK-REID SUPPLY CORP.
Salem — Clay City — St. Elmo

Atlas Supply Co. ..... Muskogee, Okla.
International Supply Co. ..... Tulsa, Okla.
American Steel Derrick Co. ..... Tulsa, Okla.
Texas Steel Co. ..... Fort Worth, Texas
Steel Products Co. ..... Iola, Kansas

*DIRECT FACTORY REPRESENTATIVES:*
MAX E. LANDRY, 533 Mayo Bldg., Tulsa, Okla.
T. C. GRAHAM, Box 596, Overton, Texas

# EVANSVILLE INDIANA

*"The Capital of Three Oil Fields"*




## MAKE *Evansville* YOUR BASE OF OPERATIONS IN THE MIDWEST'S NEW, RICH OIL-PRODUCING CENTER

A new frontier of enterprise has been opened in the Midwest! Keep your eye on it. Better than that—*come to Evansville and take a hand in it!* ★ The strategic location of Evansville—plus the city's outstanding facilities for business and personal accommodation—offer multiple advantages to oil equipment operators, producers and refiners, for immediate exploitation of the rich, steadily-expanding oil fields opened recently in the Tri-State area. ★ Evansville is the only large city in the area . . . the center of all Tri-State production and transportation. Evansville is a modern city . . . geared to serve the needs of all types of industry. Evansville is conveniently situated on the Ohio River, in the heart of the new oil-producing territories. Its complete facilities meet the needs of construction, manufacturing, transportation, finance, housing and personal welfare. ★ Investigate your opportunities in the Southern Indiana-Southern Illinois-Western Kentucky oil fields! Pick a spot in Evansville for your headquarters! "Set up" in this efficient, hospitable city, to insure economical, smooth-running, well-organized operations.

**POPULATION 110,000 ★ CONVENIENT TRANSPORTATION AND COMMUNICATION—served by 5 trunk line railroads, 2 interurban railways, 44 truck, 8 bus and 2 barge lines ★ MUNICIPAL AIRPORT ★ DEPENDABLE UTILITIES SYSTEM ★ AMPLE FINANCIAL SERVICE—9 national and state banks, 9 building and loan banks, 5 finance companies, New York and Chicago Stock Exchange service ★ MODERN WAREHOUSE AND TERMINAL FACILITIES ★ CENTRALLY LOCATED OFFICE SPACE ★ AMPLE LIVING ACCOMODATIONS—7 modern downtown hotels, 40 modern apartment buildings, new city and suburban homes for sale or rent.**

*For Complete Information . . .*
*Write, Phone or Wire*

## EVANSVILLE CHAMBER OF COMMERCE

EVANSVILLE, INDIANA

*Typical 5,000-bbl. per day U.O.P. combination crude topping, three-coil cracking and asphalt reducing unit*

# Refining Characteristics of Illinois Crude Oils

By GUSTAV EGLOFF, G. B. ZIMMERMAN and JACQUE C. MORRELL

Universal Oil Products Co.

Illinois crude oil production started in 1889 at the rate of 1,460 bbls. a year. It reached a peak of 33,686,000 bbls. for 1908 but dropped to 4,244,000 bbls. in 1933. In 1937 it increased to 7,400,000 bbls. At present, the production is at the rate of about 33,000,000 bbls. per year. The discovery of new pools during the past two years has again called attention to the Illinois fields. Table 1 shows the production by years up to 1938.

Particular attention is directed to the large production from 1908 to 1912 after which it dropped off sharply. The maximum production during this period was about 20 per cent of the total in the United States.

The American Petroleum Institute Statistical Bulletin reports for the week ending September 24, 1938, an average daily production of 74,600 bbls. for the new pools, and 12,550 bbls. for the old pools of Illinois and southwestern Indiana, a total of 87,150 bbls. per day. This is nearly the same as the peak production of the old pools in 1908. Even though this represents only 2.6 per cent of the oil production in the United States at the present time, the rapid extension of the Illinois fields and their excellent location with respect to oil consuming areas, makes them highly competitive with other crude producing fields.

The present work covers the refining characteristics of 11 crudes from the seven adjoining counties in which lie the new production of the Illinois area.

## Characteristics of Crudes

The oil is produced from formations at depth ranging from 1,420 feet for the Benoist sand in Marion County to 3,110 feet in the Ste. Genevieve formation in Wayne County. The latter, an oolitic limestone of lower Mississippian age often referred to as the McClosky sand, constitutes the principal producing horizon in the new fields. Other producing strata are the Benoist sand at 1,360 to 1,420 feet in Clinton and Marion counties, and the Bradley sand at 2,980 feet in Wayne County. Despite variations in formation and depth, the oil is relatively uniform in quality. The A.P.I. gravity ranges from 37 to 39 with only occasional water and sediment content above 0.5 per cent. Sulfur ranges from 0.12 to 0.18 per cent. Salt in troublesome quantities was found in but one sample. The low cold test and viscosity contribute to ease of pipe line transportation. In general, these oils appear similar to Mid-Continent crudes.

**TABLE 1—ILLINOIS CRUDE OIL PRODUCTION BY YEARS**

| Year— | Barrels |
|---|---|
| 1889 | 1,460 |
| 1890 | 900 |
| 1891 | 675 |
| 1892 | 521 |
| 1893 | 400 |
| 1894 | 300 |
| 1895 | 200 |
| 1896 | 250 |
| 1897 | 500 |
| 1898 | 360 |
| 1899 | 360 |
| 1900 | 200 |
| 1901 | 250 |
| 1902 | 200 |
| 1903 | ..... |
| 1904 | ..... |
| 1905 | 181,084 |
| 1906 | 4,397,050 |
| 1907 | 24,281,973 |
| 1908 | 33,686,238 |
| 1909 | 30,898,339 |
| 1910 | 33,143,362 |
| 1911 | 31,317,038 |
| 1912 | 28,601,308 |
| 1913 | 23,893,899 |
| 1914 | 21,919,749 |
| 1915 | 19,041,695 |
| 1916 | 17,714,235 |
| 1917 | 15,776,860 |
| 1918 | 13,365,974 |
| 1919 | 11,960,000 |
| 1920 | 10,774,000 |
| 1921 | 10,043,000 |
| 1922 | 9,383,000 |
| 1923 | 8,707,000 |
| 1924 | 8,081,000 |
| 1925 | 7,863,000 |
| 1926 | 7,760,000 |
| 1927 | *6,994,000 |
| 1928 | 6,462,000 |
| 1929 | 6,319,000 |
| 1930 | 5,736,000 |
| 1931 | 5,039,000 |
| 1932 | 4,673,000 |
| 1933 | 4,244,000 |
| 1934 | 4,479,000 |
| 1935 | 4,352,000 |
| 1936 | 4,475,000 |
| 1937 | 7,420,000 |

## Procedure Followed

For evaluation of these crudes from the standpoint of the average refiner, the following general procedure was employed. The crudes were distilled to remove straightrun gasoline with kerosene or gas oil. The residues remaining after the successive fractions were removed and inspected to determine their cracking characteristics and the yields of products by cracking these residues in a Dubbs unit were estimated. Cracking units of this type is illustrated in Figure 1.

In order to bring the entire gasoline yield to a 70-72 L-3 octane rating, reforming of the straightrun gasoline, or of the naphtha remaining after removal of 69-70 octane number light fraction, was taken into consideration. Polymerization of the entire cracked gas, using the catalytic process illustrated in Figures 2 and 3, was also included and the resulting polymer gasoline was blended with the cracked and reformed products.

The Clay City field, and the "Southeast Clay

City" production in Wayne County is one of the largest in area and production of the new Illinois fields. Three crudes from this area were studied.

A 36.7° A.P.I. gravity crude from the Clay City field was analyzed with the results shown in Table 2. This oil was fractionated through a Hempel column to produce gasoline of 250, 325, and 400° F. endpoint and a 27.7° A.P.I. gravity topped crude. The yields of 400° F. endpoint and 250° F. endpoint gasolines were 34.7 and 13.9 per cent respectively. The corresponding octane numbers were 49 and 66. The yield of 44.1° A.P.I. gravity kerosene was 8.6, leaving 56.5 per cent of 25.3° A.P.I. gravity reduced crude. Detailed data are shown in Table 3. Further processing of this crude for the production of readily marketable products involves cracking. Based on the analyses of the topped crude and reduced crude, cracking yields were estimated for the production of 400° F. endpoint gasoline and No. 6 fuel oil of 200 to 250 seconds Furol viscosity at 122° F. The results show 60 per cent gasoline from the topped crude and 56 per cent from the reduced crude.

The straightrun gasoline contains a 70 octane number light fraction equivalent to 8.7 per cent of the crude. The balance, a 42 octane number naphtha when reformed to 73 octane number will yield 75 per cent gasoline. The resulting gas, together with that from cracking the topped or reduced crude when polymerized will yield respectively 3.5 and 3.0 per cent polmer gasoline based on the crude oil. Overall gasoline yields of 70.7 and 62.8 per cent are thus obtainable. These gasolines have 71 to 72 octane ratings by the L-3 method. Table 4 presents complete data on the yields from the 36.7° A.P.I. crude.

A light Clay City crude having an A.P.I. gravity of 39.5° was analyzed similarly to the foregoing crude. Results are tabulated in Tables 5 and 6. Gasoline of 53 octane number and 400° F. endpoint was removed followed by 36.7° A.P.I. gravity gas oil. For processing the resulting 21.1° A.P.I. gravity reduced crude, a cracking operation was considered to produce a No. 2 fuel oil in addition to 400° F. endpoint gasoline and Grade 6 fuel oil. This No. 2 fuel oil is taken off as a side cut directly from the fractionating column and is suitable as domestic burner oil.

Reforming the straightrun gasoline, polymerizing the gas and blending the two resulting gasolines with the cracked gasoline gives an overall yield of 44.5 per cent of 72 to 74 octane number

*(Continued on Page 133)*

**TABLE 2—PROPERTIES OF CLAY CITY, ILLINOIS, HEAVY CRUDE OIL**

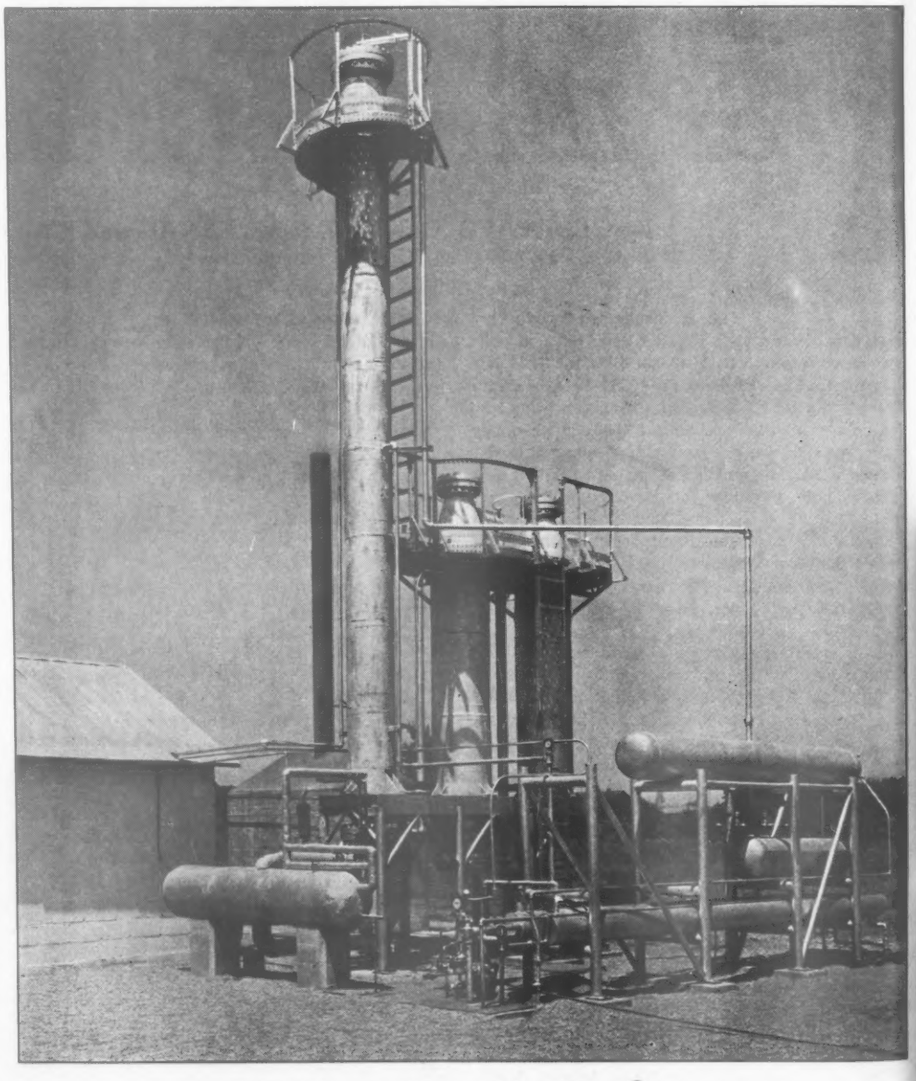
| | |
|---|---|
| Gravity, °A.P.I. | 36.7 |
| Specific gravity at 60° F. | 0.8413 |
| Cold test, ° F. | Below 0 |
| B.S.&W., per cent | 0.5 |
| Viscosity, S.U., at 100° F., seconds | 41.5 |
| Sulfur, per cent weight | 0.16 |
| Salt, as NaCl, lbs./1,000 bbls. | 87 |
| **100 cc. Engler Distillation** | |
| I.B.P., °F. | 140 |
| 5 per cent | 201 |
| 10 | 242 |
| 20 | 312 |
| 30 | 389 |
| 40 | 470 |
| 50 | 558 |
| 60 | 650 |
| 70 | 706 |
| 80 | 719 |
| 90 | 732 |
| E.P., °F. | 740 |
| Per cent over | 97.0 |
| Per cent coke by weight | 2.6 |
| Per cent loss | 0.4 |

**TABLE 3—LABORATORY BREAKUP, HEAVY CLAY CITY, ILL., CRUDE OIL, 36.7° A.P.I. GRAVITY**

| | Gasoline | | | | | |
|---|---|---|---|---|---|---|
| Fraction: | 250° F. E.P. | 325° F. E.P. | 400° F. E.P. | Topped crude | Kerosene | Reduced crude |
| Yield, vol. per cent of crude | 13.9 | 26.0 | 34.7 | 65.1 | 8.6 | 56.5 |
| Properties of fractions: | | | | | | |
| Gravity, °A.P.I. | 70.4 | 62.6 | 57.8 | 27.7 | 41.4 | 25.3 |
| Specific gravity at 60° F. | 0.7008 | 0.7290 | 0.7475 | 0.8888 | 0.8184 | 0.9024 |
| Sulfur, per cent | 0.02 | 0.02 | 0.03 | 0.22 | 0.05 | 0.27 |
| B.S.&W., per cent | ..... | ..... | ..... | 0.9 | ..... | 1.0 |
| Cold test, °F. | ..... | ..... | ..... | 40 | ..... | 45 |
| Viscosity, S.U., at 100° F., seconds | ..... | ..... | ..... | 152.5 | ..... | 309 |
| Octane No., A.S.T.M. M.M. | 66 | 56 | 49 | ..... | ..... | ..... |
| Characterization factor | 12.26 | 12.09 | 12.00 | 11.98 | 11.80 | 12.00 |
| | **100 cc. Distillation** | | | | | |
| I.B.P., °F. | 93 | 115 | 117 | 443 | 406 | 520 |
| 5 per cent | 118 | 147 | 157 | 470 | 417 | 558 |
| 10 | 131 | 163 | 175 | 486 | 420 | 576 |
| 20 | 148 | 186 | 203 | 527 | 424 | 616 |
| 30 | 160 | 204 | 224 | 586 | 428 | 659 |
| 40 | 171 | 217 | 243 | 638 | 432 | 688 |
| 50 | 181 | 231 | 272 | 664 | 437 | 705 |
| 60 | 189 | 243 | 288 | 683 | 442 | 717 |
| 70 | 197 | 258 | 304 | 700 | 449 | 725 |
| 80 | 207 | 273 | 324 | 715 | 458 | 735 |
| 90 | 224 | 295 | 355 | ..... | 473 | 742 |
| E.P., °F. | 251 | 326 | 400 | 722 | 512 | 742 |
| Per cent recovery | 97.0 | 97.5 | 98.0 | 94.0 | 99.0 | 94.0 |
| Per cent residue | 1.0 | 1.0 | 1.0 | . | 1.0 | ..... |
| Per cent coke by weight | ..... | ..... | ..... | 5.8 | ..... | 6.2 |
| Per cent loss | 2.0 | 1.5 | 1.0 | . | ..... | ..... |
| Per cent at 572° F. | ..... | ..... | ..... | 28.0 | ..... | 9.0 |

**TABLE 4—ESTIMATED SKIMMING AND CRACKING YIELDS FROM 36.7° A.P.I. GRAVITY, CLAY CITY, ILL., CRUDE**

| | | |
|---|---|---|
| Fractionation yields, vol. per cent of crude: | | |
| Light gasoline (70 Oct. No., M.M.) | 8.7 | 8.7 |
| Naphtha (42 Oct. No., M.M.) | 26.0 | 26.0 |
| Total gasoline (49 Oct. No., M.M.) | 34.7 | 34.7 |
| Kerosene | ... | 8.6 |
| Reduced crude | 65.1 | 56.5 |
| Recovery | 99.8 | 99.8 |
| Loss | 0.2 | 0.2 |
| Cracking yields, vol. per cent of reduced crude: | | |
| Cracked gasoline (67-69 Oct. No., M.M.) | 60 | 56 |
| Residuum (No. 6 fuel oil) | 31 | 37 |
| Recovery | 91 | 93 |
| Loss | 9 | 7 |
| Gas, cu. ft./bbl. reduced crude | 550 | 480 |
| Total gasoline by skimming and cracking: | | |
| Volume per cent of crude oil | 73.7 | 66.3 |
| Octane No., M.M. | 61 | 59 |
| Octane No., L-3 method | 62 | 60 |
| Reforming yields, vol. per cent of naphtha: | | |
| Reformed gasoline (73 Oct. No., M.M.) | 75 | 75 |
| Reforming residue (No. 6 fuel oil) | 2 | 2 |
| Recovery | 77 | 77 |
| Loss | 23 | 23 |
| Gas, cu. ft./bbl. naphtha | 740 | 740 |
| Overall yields, including reforming and polymerization, vol. per cent of crude oil: | | |
| Light gasoline | 8.7 | 8.7 |
| Cracked gasoline | 39.0 | 31.6 |
| Reformed naphtha | 19.5 | 19.5 |
| Polymer gasoline | 3.5 | 3.0 |
| Total gasoline | 70.7 | 62.8 |
| Kerosene | | 8.6 |
| Total residuum | 20.0 | 21.4 |
| Recovery | 90.7 | 92.8 |
| Loss | 9.3 | 7.2 |
| Residual gas, cu. ft./bbl. crude | 470 | 390 |
| Octane rating of total gasoline: | | |
| Motor method | 69-70 | 69-70 |
| L-3 method | 71-72 | 71-72 |



*Small (50 bbls. per day) catalyst polymerization unit*

# Ideal-Ajax

## ON THE JOB in the RIO BRAVO FIELD

**High drilling speeds, the last word in equipment, and noteworthy operating economies mark development of the Rio Bravo field. Here Ideal-Ajax Steam Drilling Engines are right at home—"delivering the goods" with the great reserve power and smoothness of today's Ajax engines . . . with the faithful reliability and freedom from trouble of every Ajax built since 1877. Available at all times for helpful discussion of your drilling engine needs is your nearest National Supply Co. representative. Make use of his knowledge and experience!**

*"AJAX—the greatest name in steam since 1877"*

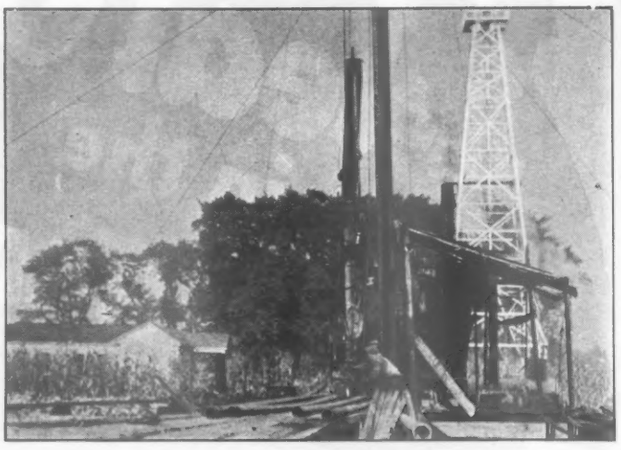
*Manufactured Exclusively by*

**AJAX IRON WORKS**
**CORRY, PENNSYLVANIA**

*Distributed by*
**THE NATIONAL SUPPLY COMPANIES IN EVERY FIELD**

# Birk Discovery Stimulates Exploration in Kentucky

By DAL DALRYMPLE



*Scene in Birk City field*

When Hoosier Drilling Co. brought in its No. 1 Blackwell in a bend of the Green River in eastern Henderson County on April 22, 1938, to prove McClosky lime production for the Kentucky sector of the eastern interior basin, it gave new vigor to leasing and drilling activity that had started on a large scale as a result of earlier discoveries in the adjacent Illinois and Indiana portions of the basin.

The lease play, sweeping down from Illinois and across a corner of Indiana, was most active in Union, Webster and Henderson counties in the early days of the current Kentucky activity. Then the Birk City strike was followed by increased activity and now, six months later, there is little or no indication of a let-up in leasing, with the acreage hunters extending their operations into Daviess County, eastward from Owensboro and into other sections of the Kentucky basin. Leasing is progressing at about the same speed as that in Illinois, with five-year leases predominating but 10-year leases being more frequent in remote places.

Companies taking Kentucky leases include Carter Oil Co., Gulf Petroleum Corp., Texas Co., Sun Oil Co., Magnolia Petroleum Co., Tide Water Associated Oil Co., Pure Oil Co., Skelly Oil Co., Phillips Petroleum Co., Ohio Oil Co., South Penn Oil Co., Kentucky Natural Gas Co., Benedum & Trees, and several other companies and independent operators, many of whom have their headquarters in Owensboro. While the major companies and some of the big independents are among the more active lessees, this play is particularly outstanding because of the large number of local operators who are participating. Numerous veteran Kentucky oil men, who did not desert the shallow pools of their state for the more prolific and sensational fields of the Southwest, are sharing in the new play to a far greater extent than is customary with local operators. Owensboro is the center from which most of this work is directed, but the city of Henderson and some other local communities have a share of the development.

*Birk City field at the river; center foreground, scores of cars await ferry transportation*

### First Oil in 1819

The discovery at Birk City has served to center attention of the petroleum industry anew on Kentucky—yet the production of oil and gas is no new thing in the land of the blue grass, here, indeed, being a pioneer hunting ground of the oil prospector. It is a far cry from 1819 to 1938, but that is the stretch of time between the first recorded discovery of oil in Kentucky and the opening of this new pool. The first Kentucky oil was found in a well drilled for brine in McCreary County, then a part of Wayne County in southern Kentucky, in 1819. Reports of that day say the well yielded so much black petroleum it was abandoned.

The next Kentucky well was drilled in 1829 in Cumberland County, south-central part of the state. It yielded such a flow of petroleum that it was regarded as a wonderful natural phenomenon and was widely known as "The Great American Well." It was located near the axis of the Cincinnati arch, in the saddle between the Lexington and Nashville domes. Production was from a porous Ordovician lime. It was estimated to have produced about 50,000 bbls. of oil up to 1860. The larger part of the production was wasted, but a few barrels were bottled and sold as liniment in the United States and Europe under the name of "American Oil."

Production from Devonian limestone, known throughout Kentucky as Corniferous lime, was uncovered in other counties in the early 1860s. This formation became the state's most prolific producing horizon. Additional discoveries were made in Kentucky through succeeding years, but the basin proper did not develop production until early in this century. The Hartford pool in Ohio County, adjoining Daviess County on the southeast, was opened in 1913, producing from Corniferous lime. Development of shallow Pennsylvanian and Chester sandstone horizons along the eastern rim of the basin after the World War was followed by drilling of hundreds of wells in Daviess, Ohio, Hancock and neighboring counties.

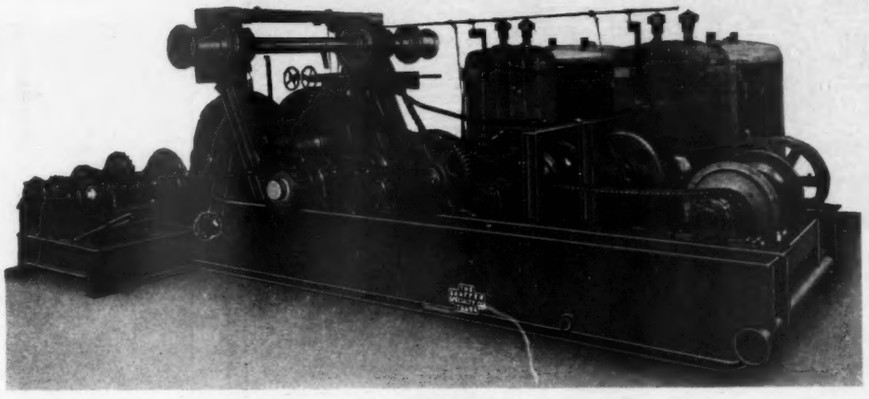
### Shallow Producers

Pay horizons in these shallow wells range from 150 feet to 1,000 feet, seldom deeper. Initial yields are from 1 bbl. to 800 or 900 bbls. daily, the average per well being less than 100 bbls. daily. Production declines rapidly from initial gauges, but the wells have long productive lives. It is this type of production that has kept many of the local Kentucky operators at home despite the lure of bigger and deeper production elsewhere. They still are drilling such shallow wells in Western Kentucky, and within recent years repressuring of the old properties with air or gas has proven profitable. Daniel J. Jones, state geologist, has been among the more active in promoting repressuring and improving production practices in Kentucky.

Discovery of McClosky lime production at Birk City not only increased leasing activity and inaugurated an extensive program of deep drilling, but resulted in a revival of shallow drilling in Western Kentucky. In seeking McClosky pay the operators have uncovered much new shallow production that had been overlooked through many years of exploration.

Other results followed opening of the Birk City pool, foremost being crude price reductions following the increase in flush production. So many operators were affected by price cuts in both Eastern and Western Kentucky, that the Kentucky Oil and Gas Association deemed it important enough to investigate the economics of the new production. George L. Ballentine, petroleum and valuation engineer of Charleston, W. Va., was employed to study the Birk City field, costs of development and operation, and the production and decline of

# A Rotary Hole a Week In Illinois—3315 ft. in 10 days in Kansas...



*View of Unit with Guards removed, showing details of construction.*

# with the SHAFFER MODEL 250 (Skid Type) Portable Rotary Drilling Unit

## (4000 ft. WITH 3½" OR 4½" DRILL PIPE)

The compact arrangement of power units, transmission drive and draw works incorporates this complete unit in two truck loads.

This unit is readily adaptable to Dual installation of any make Gas-Gasoline, Butane or Diesel engines delivering a maximum capacity of 125 H.P. each, requiring no alteration in mounting construction.

Levers for operating all Clutches as well as Compound Throttles are centralized at the driller's position. Throttle control is incorporated in a single hand wheel comparable to steam engine control.

Both engines are compounded to operate the pump, while at the same time, rotary table speeds of 35-55-75 and 110 R.P.M. are available.

We have designed this unit to meet the new demands and requirements which have been recognized as essential to economical operation. All of the principals incorporated in this unit are the direct result of practical field experience and engineering research, and the changing trend in operation to smaller holes.

It is highly gratifying to examine performance records from the field which have revealed that we have successfully met these new demands.

Lower Fuel, Rig-Up Time, Maintenance and Transportation Costs have been definitely achieved.

If you are interested in these things you will not hesitate to communicate with us for further and more complete detailed specifications and information.

Remember—This Portable Rotary Drilling Unit is Big Enough and Strong Enough to operate with efficiency. It is scientifically designed to be compact, and no sacrifice has been made in construction to achieve its practical portability.

●

We also manufacture units of comparable design for drilling to greater depths.

## MODEL 400 for 6,000 ft.
## MODEL 500 for 10,000 ft.

●

Write for Specifications and Literature.

DESIGNING ENGINEERS — MANUFACTURERS

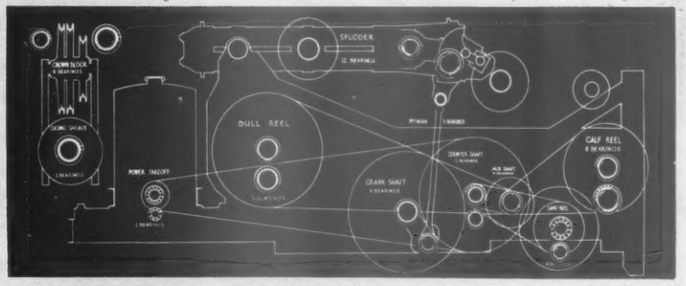
THE SHAFFER SPECIALTY CO.

BOX 136 WHITTIER STATION — TULSA, OKLAHOMA — 2440 EAST KING STREET

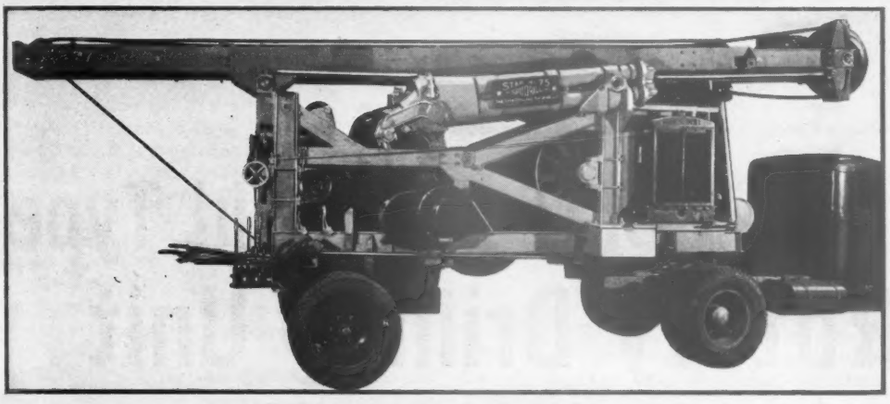
# 100% Anti-Friction Bearing Equipped ★ ★ ★

## For Smooth Operation -- Long Life

**The No. 75 STAR <SPUDRILL>**




This diagram shows the location of bearings on the No. 75 Spudrill. Only one bearing is shown on each shaft, although several may be used.



THE No. 75 Star Spudrill is completely equipped with anti-friction bearings. Now, for the first time, a portable drilling machine offers the power-saving advantages, smoothness of operation and long life that is possible only with anti-friction bearings.

With its all-steel construction — free-running, chain-driven reels — air-cooled brakes—high-speed moving ability and quick rigging up—the No. 75 Spudrill is the most modern portable drilling machine on the market.

Write for bulletin describing this new machine to The Star Drilling Machine Company, Akron, Ohio, or to one of these branches: Chanute, Kansas — Abilene, Texas — Portland, Oregon.

## STAR DRILLING MACHINES

★ *For All Around Satisfactory Performance* ★



# SERVICE

For Oil Operators in the
ILLINOIS OIL FIELDS

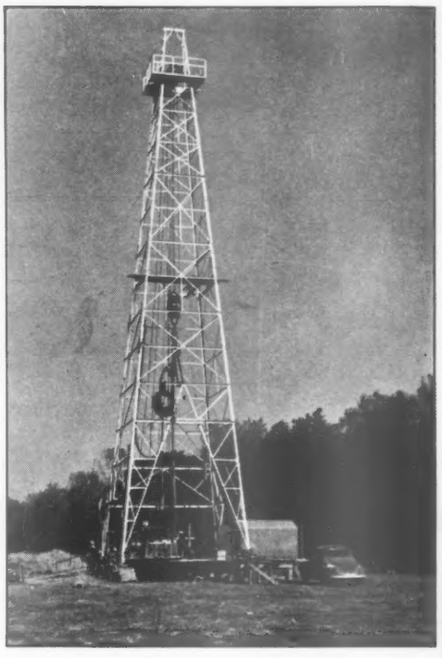
CEMENTS
Incor — Lone Star — Red Ball — Red Ring
Timbers — Lumber
Corrugated and Crimped Galvanized Sheets — Paints and Hardware
*DAY AND NIGHT SERVICE TO ANY PART OF THE FIELD*
Yards in Illinois at Centralia - Coulterville - Irvington - Hoyleton
Oakdale - Nashville - Bluford

## D. RIXMANN LUMBER CO.

Phones 896—897 Night 1907—1739
214 W. CALUMET STREET CENTRALIA, ILL.


wells. His report was made to the association as of September 1. In a foreword, Earl J. Wallace of Lexington, president of the association, said:

"Careful study and analysis of the report will convince you that the rapid decline of McClosky production in the Birk City pool, the approximate reserves per acre, the yield per well and the investment in drilling and equipping the wells are such as to make it improbable that operators can make any net profit in this area except by drilling one well to each 15 or 20 acres and that the drilling of the wells on the townlots in Birk City will be just as unprofitable as the townlot development of the Livermore, McLean County pool, and many others."



*Typical Birk City well*

Mr. Ballentine's report included the following data:

### Natural Flowing Well

The Birk City discovery well had McClosky lime at 1,871 feet, and at 1 foot in the formation started flowing 50 bbls. of oil an hour. It flowed for the next four weeks, when the decline in pressure made it necessary to install pumping equipment. Location was in eastern Henderson County, a short distance from Birk City across the Green River in Daviess County. The second well was completed on the adjoining tract May 18, being put on the pump after acid treatment. The discovery well was not acidized and is the only well in the field that flowed naturally, although several have flowed after acid treatment. At the time of the report, 40 producing wells and 8 dry holes had been completed in McClosky lime, that number being increased by subsequent completions. The field was extended across the river into Daviess County.

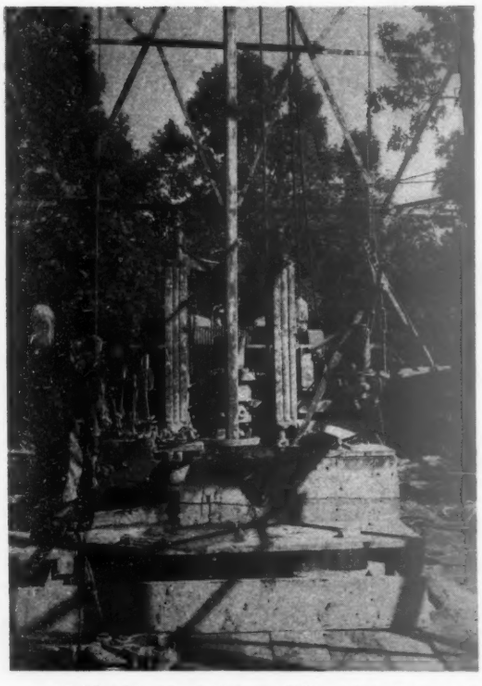
The proven area includes about 1,100 acres. The limits of the pool are partially defined by tests on the southeast and southwest, no dry holes having been drilled within limits of the productive area.

Early in the development of the pool a spacing of 660 feet between locations or 10 acres per well was adopted. After development had extended to the town of Birk City, several wells were drilled on tracts of two acres or less.

During July the Birk City area produced an average of 2,500 bbls. daily, as compared with the normal 14,500 bbls. daily produced in the entire state, or about 18 per cent of the state total. (Daily average production subsequently has gone to as high as 4,600 bbls.) The average of all initial productions as reported was 435 bbls. per well, and

The new Schlumberger "Electrical Well Logging" catalog, No. 809, is ready. A copy will gladly be sent to interested persons on request. Schlumberger Well Surveying Corporation, Houston, Texas.

# SLIM HOLE DRILLING COSTS SLASHED by NEW PORTABLE RIG...



● *The No. 51 Drill is available with trailer, track type or skid mounting with or without portable derrick, integral or separate mud pumps and other optional arrangements.*

## Saves 2 to 3 Days Drilling Time Per Well

Drilling 1900 ft. wells in the Illinois Basin, a contractor's rotary crew has been handing in records of 2 to 3 days time saved in drilling per well with the new Sullivan No. 51 Drill.

The portable arrangement saves set-up, moving and knock-down time. Flexible, dual engine drive, hydraulic and kelly feed and retractable rotary table are some of the other features responsible for the highly satisfying progress to date in completing five wells.

Write or wire our nearest office.

**SULLIVAN MACHINERY COMPANY**
**Michigan City, Indiana**

1914 Commerce St., Dallas • 321 Wright Bldg., Tulsa • 30 Church St., New York
London • Paris • Johannesburg

**SULLIVAN**

reported daily potential capacities as of late August average 221 bbls. per well.

The oil is 37.20 degrees gravity. One analysis shows the sulfur content, as hydrogen sulfide, to be 210 pounds per 1,000 bbls.

The price of oil was $1.40 a barrel when the Birk City discovery well was completed. The price declined to $1.35 in May, and in June to $1.25, with Western Kentucky oil bringing $1.10 a barrel as of October 13.

### Use Rotary Tools

Nearly all wells, excepting the discovery, have been drilled with rotary tools. The cost of drilling is approximately the same with cable tools as with rotary, but the drilling time is reduced from about 65 days with cable tools to about 12 days with rotary. A completed, producing well costs slightly less than $14,000.

In the early days of this development the wells produced their maximum, production later being prorated. An accurate estimate of reserves cannot be made because of its short history and curtailed production in the field. The similarity of the Birk City pool with McClosky pools in Illinois makes it possible to make a reasonable estimate of expected reserves, however. The thickness, porosity and permeability of the pay in the Kentucky and Illinois McClosky areas are very similar.

Rapid decline of wells in the Clay City and Noble pools of Illinois indicates that production is not water driven. No water is found in the McClosky at Birk City. The Clay City and Noble wells ranged from 3,000 to 31,000 bbls. production during the first 30 days. Birk City wells ranged from 3,000 bbls. during an equivalent period. Composite decline curves were made from approximately a year's record of daily production of key wells at

*Birk City transportation: Ferry on Green River*

Clay City and Noble. Production of four leases at Birk City was plotted on the Illinois composite curve to determine whether or not it followed the same decline. It was found that the declines are similar.

It was estimated that a well producing 3,000 bbls. of oil gross in the first month will pay back the approximate original investment. Wells with 10-acre spacing and having an initial 30-day production of 3,000 bbls., were estimated to have ultimate reserves of about 15,000 bbls. and will approximately pay out on $1.25 oil.

In concluding his report, Mr. Ballentine said: "Serious consideration should be given to spacing before making a location in the Birk City pool. The present information indicates that any part of the pool, developed on a spacing of five acres per well or less, will not, as a whole, return the investment.

The probable recovery per day of Birk City

*(Continued on Page 130)*

# Service on New Fields

## BIRK CITY FIELD, HENDERSON AND DAVIESS COUNTIES, KENTUCKY

Compiled by The Oil and Gas Journal

**Approved name:**

Birk City field.

**Geographical location:**

In eastern Henderson County and western Daviess County, northwestern Kentucky, and about 8 miles south of the Indiana line.

**Principal towns and cities near the field:**

Owensboro, Ky., population 23,100, about 10 miles east; Henderson, Ky., population 11,668, about 18 miles west; Evansville, Ind., population 105,100, about 30 miles northwest. Latest census figures are given.

**Cities and towns where supply companies have branches:**

Most of the supply houses are in Owensboro or Henderson. Those without stores in the district usually have field representatives, with the nearby cities as distributing points.

**Railways serving the area:**

The L.H.&C.R.R. runs north of the field, from Henderson to Owensboro, continuing eastward from Owensboro. It connects with lines of the Louisville & Nashville and Illinois Central routes at both Owensboro and Henderson.

**Character of roads:**

U. S. Highway No. 60, running north of the field, is paved from Owensboro to Henderson; additional paved roads extend in other directions from those cities. State Highway No. 54, providing the nearest approach to the field, is paved 8 miles west from Owensboro and about 5 miles eastward from Henderson, the intervening sector being graveled. Dirt roads penetrate the field. Ferries and toll bridges are numerous.

**Trucking companies and barges:**

River barges provide much of the transportation for this district. Trucking contractors are located in Owensboro, Henderson and Evansville.

**Hotel and other accommodations:**

Modern hotels provide comfortable and adequate facilities at Owensboro and Henderson. Several large hotels at Evansville are near enough to take care of any overflow business that may result from an oil boom. As yet, housing facilities of both Owensboro and Henderson are adequate.

**Schools and churches:**

This is an old, well settled farming area, adequately supplied with customary country schools and churches. A large consolidated school serves the immediate Birk City sector. Both public and parochical schools at Owensboro and Henderson are numerous and modern.

**Development:**

The pool opener, Hoosier Drilling Co. No. 1 Blackwell, was completed April 22, 1938, for 1,200 bbls. initial production from McClosky lime at 1,872-74 feet, total depth. Location was in western Henderson County, in a bend of the Green River, and near the little town of Birk City. The producing area later was extended across the river into Daviess County, and extensions have been recorded in other directions. Dry holes have been drilled in the proven district, but these are not generally considered as defining the area, due to the irregularity and uncertainty of the lime pay.

**Electric power and gas companies:**

Purchased electric power is available. Natural gas is more plentiful than in most of the Illinois fields, and local towns have gas for fuel. Wood and coal also is available.

**Completions to date:**

A recent tabulation showed 60 completed wells in the Birk City field, with some five failures in the pool and adjacent district.

**Number of operations:**

Approximately 30 wells were listed as locations, rigging up or drilling.

**Future activity:**

Sufficient territory has been proven for production to provide drilling activity for a considerable period of time, even if operations are confined to inside locations. Additional extensions are predicted, however, opening up more area to development. Geologists and other observers believe that additional McClosky pools may be opened in the general area. Shallow drilling, which has been under way for several years, continues.

**Speed of drilling:**

Variation in the hardness of subsurface strata affects drilling time on different wells. A week is generally allowed for rigging up and setting pipe with rotary tools; cable tools require from 20 to 25 days. Rotary completions require from three to five days.

**Character of mud:**

Nine and one-half pound mud used to set surface pipe and drill to about 1,200 feet. Mud is then heavied to around 10.2 pounds per gallon and from 38 to 40 viscosity for drilling through the gas-bearing sands. Holes stand up good, but there is some tendency to stick drill pipe in the Mississippian sands.

**Slush pumps:**

One power pump or one steam pump used. Steam pumps are 12 by 12 by 6¾ inches or 14 by 14 by 7 inches. Power pumps are 12 by 6¾ inches.

**Water supply:**

Green River forms the boundary line between Daviess and Henderson counties and runs through the heart of the field. Water for drilling fluid or steam-generating purposes is plentiful.

**General geology:**

Warping and folding are common in this vicinity, with the field lying on the west side of the Curdsville fault along the Euterpe anticline. Production is from the McClosky section of the Ste. Genevieve limestone. While the field is on a structural feature, the porosity of the oolitic lime zone is of primary importance. Porosity is generally indicated by several feet of interbedded white oolitic limestone and dark green shale followed by a thin layer of lime containing loosely cemented, dwarfed oolites. This combination is generally present in wells making commercial production.

### DRILLING

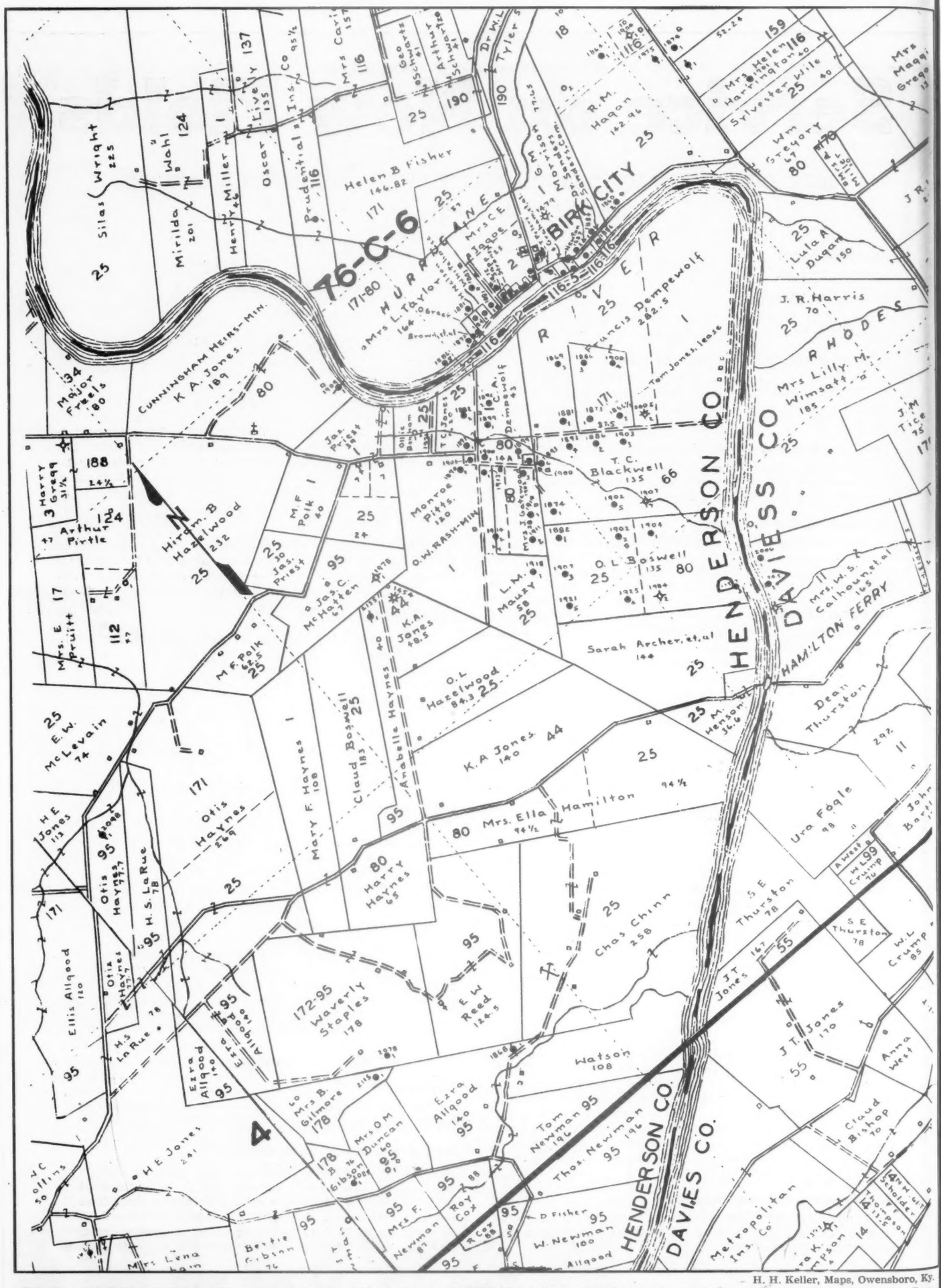
**Derricks:**

The shallow drilling does not require a tall derrick. Most operators are using 85- or 96-foot derricks on wooden corners.

**Type of drilling equipment used:**

First well in the field drilled with cable tools, but because of the several gas sands, rotary rigs were brought in for the development. Most of the rotaries are light, power-driven rigs, although some are steam-driven. A few holes have been drilled with cable tools, and on wells having little or no gas pressure, spudders are used for completion. There are about 15 rotary rigs in the field, 10 of

*(Map Page 98, Continued on Page 100)*

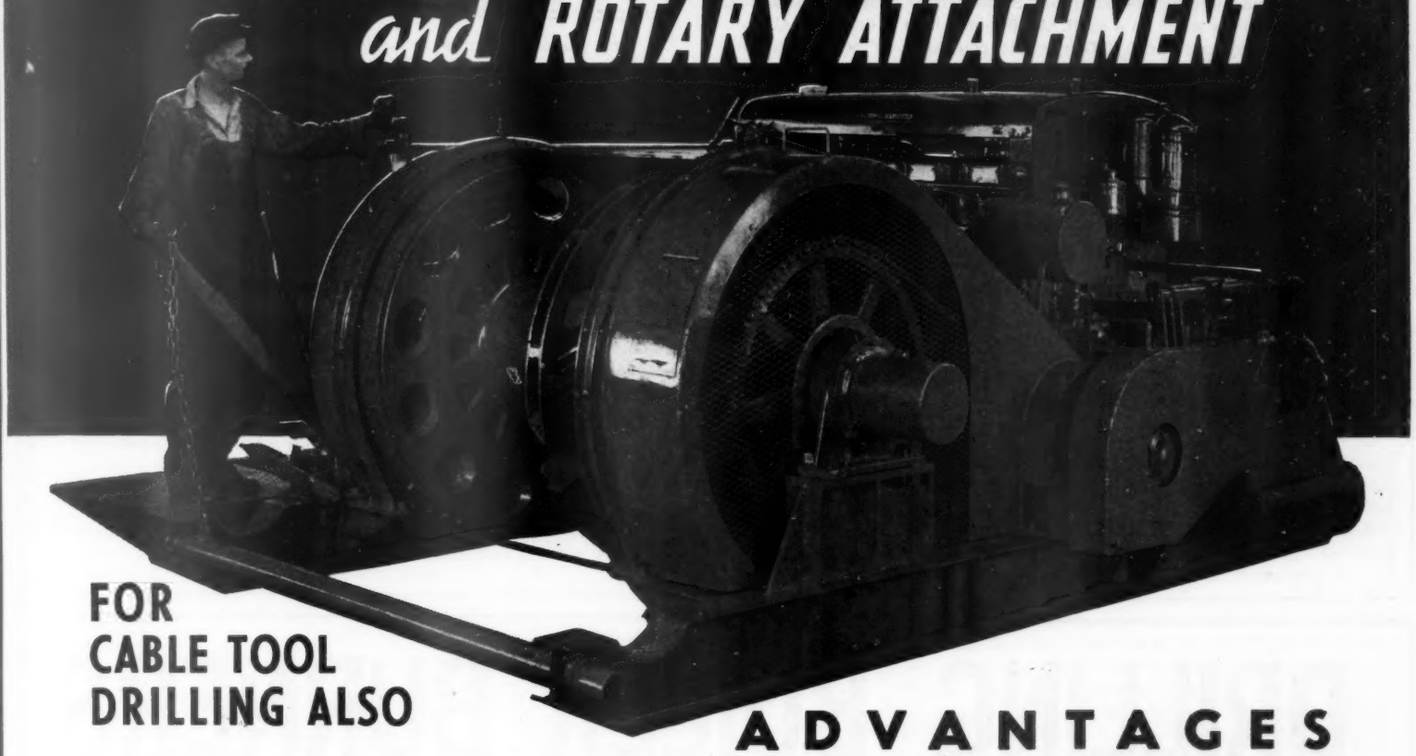



H. H. Keller, Maps, Owensboro, Ky.

***Birk City pool, Henderson and Daviess counties, Kentucky. Scale, 1 inch equals 2,000 feet. Lease owners identified by numbers, as follows: 1, Aetna Oil Service Corp; 2, Jess Ashby and others; 3, W. H. Albaugh and others; 11, Benedum-Trees and others; 12, W. W. Bailey and others; 17, Alex Blair; 18, Bailey, Bond, Hays & Fitzpatrick; 25, Carter Oil Co.; 34, Central Illinois Development Co.; 44, J. C. Ellis and others; 55, Frost & Vickers; 66, Hoosier Drilling Co.; 80, W. E. Hupp and others; 95, Kentucky Natural Gas Co.; 99, Kentucky Producing Corp.; 112, Lincoln Petroleum Co.; 116, Major Oil Co.; 124, J. C. Miller, Trustee; 137, Ohio Oil Co.; 159, J. R. Speary; 170, W. K. Snyder and others; 171, Snowden & McSweeney and others; 172, Sun Oil Co.; 178, Thompson Drilling Co. and others; 188, J. P. Warren; 190, Western Kentucky Petroleum Corp.; 114, H. J. Bruner***

# 4000 ft. with 4" Drill Pipe

## *with this new ISCO Spudder Winch and ROTARY ATTACHMENT*



## FOR CABLE TOOL DRILLING ALSO

Several features and advantages make the New ISCO Spudder Winch (Model 110) "stand out from the crowd." Its great versatility and quick conversion for ROTARY DRILLING, CABLE TOOL DRILLING and WELL SERVICING, give it unusual value as a general utility unit. Its line capacity and flexibility make it easily and ideally adaptable for varying field and operating conditions.

In just 3 hours, this new ISCO Winch can be converted into a Rotary Draw Works, with a capacity of 4000 ft. with 4" Drill Pipe, by adding the Rotary Drive Sprocket and Cathead Assembly.

In just 5 hours, the Spudder Attachment and Upper Drum Assembly convert the unit for Cable Tool Drilling, to a depth of 6000 ft.

For Well Servicing—Rod and Tubing jobs up to 10,000 ft.; Clean-out work up to 6,000 ft.

Can be installed on derrick floor or truck mounted for drilling; truck mounted for well servicing.

## ADVANTAGES

- Quick, easy conversion for Rotary, Cable Tool or Well Servicing.
- Centralized Controls provide easy operation from the driller's position.
- Large Brakes and Drum Assembly give considerable advantage over conventional equipment.
- Easy Portability: Weight 11,000 lbs. without engine.
- Power: Gas or Diesel up to 150 H.P. with Maximum Torque of 550 ft. lbs.

### SPOOLING CAPACITY
Without Divider

| LOWER DRUM | | UPPER DRUM | |
|---|---|---|---|
| Size of Line | Length in Feet | Size of Line | Length in Feet |
| ¾" | 10,000 | ¾" | 6,300 |
| ⅞" | 7,300 | ⅞" | 4,500 |
| 1 " | 5,500 | 1 " | 3,400 |

## "NEXT TIME CALL INTERNATIONAL"

**OKLAHOMA**
Tulsa, Seminole, Maud, Oklahoma City, Wewoka, Fittstown

**KANSAS**
Chase, Hays, Great Bend, Hutchinson, *Wichita

**TEXAS**
Kilgore, Kermit, Odessa, Wink, *Dallas, Turnertown, Willow Springs, Pampa, Houston, Kemp City

**NEW MEXICO**
Artesia, Hobbs

*Offices Only

# INTERNATIONAL SUPPLY CO.

## ▶▶▶ TULSA, OKLAHOMA ◀◀◀

which are active at the present time. About 10 spudding machines are operating.

**Fuel:**

Diesel, gasoline or butane engines are used mostly, and fuel for these rigs is delivered to the location by truck. On the steam rigs oil is most commonly used for fuel, although the field does in some places produce enough gas to fire one small boiler.

**Size of hole and casing program:**

Most operators are drilling 125 to 160 feet of 12¼-inch surface hole and running 10-inch pipe. Some cement the surface string, while others set it on a shell. An 8¾-inch hole is drilled to the top of the pay and 7-inch O.D. run and cemented. If completed with rotary, a 6¼inch hole is drilled into the pay. Cable-tool completions are either 5- or 6-inch hole.

**Type engines:**

Gasoline or Diesel engines vary in size from 80 to 160 hp. Steam rigs use 10- by 10-inch, or 11- by 11-inch, open-type, twin-cylinder engines. One or two boilers may be used for generating steam.

**Type of bits and stems:**

The entire hole is drilled with rock bits. Most drilling contractors have equipped their rigs with 30-foot drill collars.

**Tubing used:**

Most operators are using 2½-inch tubing with some favoring 2-inch tubing. Tubing is selected to fit well requirements.

## PRODUCTION PRACTICE

**Methods of producing oil:**

Wells are flowed through open tubing as long as storage facilities permit or oil can be delivered to market. Casing pressures run from 200 to 300 pounds on completion. Little gas pressure is available to force the oil from the producing horizon and no effective water drive is present. Wells go on the pump shortly after completion.

**Separators and tankage:**

Storage facilities designed to suit the requirements of individual operators, with some having large tank batteries. A tendency to use a large number of small tanks is apparent. Some operators using separators with others considering them unnecessary.

**Pumping conditions:**

One geared power is being installed in the field. Wells are pumped with individual jacks powered with small internal combustion engines. Small leases may be pumped with back-side take-offs, with the larger tracts being produced by power-operated jacks.

**Water conditions:**

Water present in small quantities in the bottom of the producing section.

**Shooting and acidizing:**

Wells are completed by applying a comparatively heavy acid treatment of 3,000 to 5,000 gallons.

## GENERAL DATA

**Outlet for oil:**

Oil from the discovery well was shipped by barge from a loading rack on Green River. Several local gathering lines have a network through the field with the oil being shipped by barge or carried to Stanley, Ky., for railroad shipment. A line of the Illinois Pipe Line Co. runs from Owensboro, Ky., to Robinson, Ill.


# DRILLING BOILER BURNERS

*can be economical on fuel—*

*Fuel Used by Off-set Wells at Ada, Oklahoma*

**BROWN NO. 1**
**Open Bottom Type Burners**
**Gas Meter Readings**
**Total Fuel . . . 35,310,000 Cubic Feet**

**HOUSE NO. 1**
**Changed to John Zink Burners**
**Gas Meter Readings**
**Total Fuel . . . 20,479,000 Cubic Feet**

**WE DO NOT CLAIM THAT OUR BURNERS MADE A SAVING OF 15,000,000 CU. FT. OF GAS BUT IT IS QUITE OBVIOUS THAT OUR BURNERS DID BRING ABOUT A MARKED REDUCTION IN FUEL AND THIS, OF COURSE, RESULTS IN A MARKED SAVING IN BOILER UPKEEP.**

**JOHN ZINK BURNERS** (JOHN ZINK BURNERS) **TULSA, OKLAHOMA**

**Jim Morgan, Houston**
**Tel. Wayside 8833**

**J. Arthur Moore, New York**
**Tel. VAnderbilt 3-0174**

**Dudley Shrimpton, Los Angeles**
**Tel. Mutual 5656**

# Economic Position of the Illinois Oil Industry

By WALTER H. VOSKUIL
Mineral Economist, Illinois State Geological Survey*

Widespread interest in the recent developments in the oil industry in Illinois have occasioned this brief analysis of the economic position of the industry in this state. The elements that will be considered in this discussion include the past and present positions of Illinois in the national oil picture, the relation of new production in Illinois to supply and demand for oil products in 1937 and 1938; the position of Illinois in its local oil market, and the competitive position of Illinois among oil producing states.

From a peak production of 33,700,000 bbls. in 1908, obtained mainly in the old southeastern field, Illinois production fell to the low ebb of approximately 4,500,000 bbls. in 1936, or roughly 0.4 per cent of the national output. With the discovery and development of oil deposits in the deep basin, production has increased to a point which leads us to believe that it will reach approximately 20,000,000 bbls. for 1938, or 60 per cent of the 1908 output and 1.6 per cent of the estimated total for the nation for 1938.

In order to gain a true perspective, Table 1 is presented, showing production, contribution to the daily national demand, and per cent of United States production during the period following the opening of the new fields.

**TABLE 1—ILLINOIS PRODUCTION, 1936-38**

| Year— | Illinois production (thous.) | Contribution to daily U. S. demands, in days' supply | U. S. production (thous.) | Illinois per cent of U. S. total |
|---|---|---|---|---|
| 1936 | 4,475 | 1.5 | 1,099,687 | 0.4 |
| 1937 | 7,426 | 2.3 | 1,277,653 | 0.6 |
| 1938 (7 months) | 9,498 | 3.0 | 705,744 | 1.3 |
| 1938 (est. for yr.) | 20,000 | 6.3 | 1,230,000 | 1.6 |

With respect to conditions of supply and demand during the period of new developments in Illinois, the United States output of crude petroleum in 1937 increased 177,966,000 bbls. over 1936, or equal to 16 per cent. Of this increase, Illinois contributed 2,751,000 bbls., or 1.7 per cent. The principal contribution to this added supply came from Texas, followed by substantial quantities from California, Oklahoma, Kansas, New Mexico, and Louisiana. During the first seven months of 1938, there was a decrease in national production of 25,143,000 bbls. over the first seven months of the previous year, although Illinois increased its contribution by 6,582,000 bbls. This increase was not sufficient, however, to account for the increase in surplus of certain classes of refined products in the first half of the year 1938.

An examination of Table 2 shows a 9.5 per cent increase in stocks of crude petroleum and principal refined products on December 31, 1937, over the previous year. The principal increase occurred in stocks of gasoline. From December 31, 1937, to July 31, 1938, there was a decline of 1.2 per cent in total stocks. The decrease during this period was effected entirely in the supply of crude petroleum. The supply of gasoline remained virtually unchanged, whereas kerosene, gas oil and distillate fuel and residual fuel oil showed substantial increases. The program of production curtailment beginning in May with Saturday and Sunday shutdowns in Texas aided materially in reducing stocks of crude petroleum and gasoline below the level of July 31, but stocks of fuel oil continued to increase. The increase in gas oil and distillate fuel from which most of the heating oils are obtained, was seasonal, since purchases of oil for domestic and commercial heating decline rapidly after March. A decline in stocks of this refined product may be expected in September and continue until February, 1939. In view of the annual increment in the number of oil burners installed each year, the present stocks do not appear to be excessive.

**TABLE 2—STOCKS OF CRUDE OIL AND REFINED PRODUCTS ON SPECIFIED DATES***

(Thousands of barrels)

| | Dec. 31, 1936 | Dec. 31, 1937 | July 31, 1938 |
|---|---|---|---|
| Crude petroleum | 288,184 | 306,084 | 288,664 |
| Gasoline | 62,885 | 76,990 | 76,732 |
| Kerosene | 5,633 | 7,083 | 10,112 |
| Gas oil and distillate fuel | 22,719 | 22,566 | 26,620 |
| Residual fuel | 84,199 | 95,019 | 99,363 |
| Total | 463,620 | 507,742 | 501,491 |

*Source: U. S. Bureau of Mines, monthly petroleum statements.

The unusually long-continued and large increase in stocks of residual fuel oil cannot be related entirely to fluctuations in seasonal demand. This type of fuel finds its principal outlet as an industrial fuel. With the recession in industrial production beginning in 1937 and continuing through a large portion of the year 1938, demand for the residual fuel oil fell off sharply so that the large supply of stocks accumulated as a result of increased runs to stills in 1937, continued to increase in 1938, in spite of a curtailed production program. The disposal of this product is currently one of the critical problems of the petroleum industry and can be solved only by a hoped-for increase of industrial activity.

### Illinois Petroleum and the Local Market

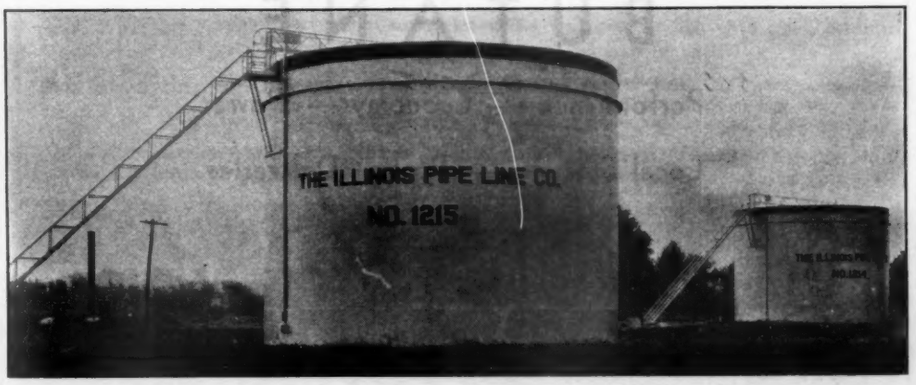
The Illinois oil-producing districts are located in close proximity to a large gasoline, heating oil and industrial fuel market. The principal outlet for the products of refineries located in Illinois and Indiana are in the states of Illinois, Indiana, Wisconsin, Minnesota, and Iowa.

Consumption of major oil products in Illinois amounted to 47,000,000 bbls. in 1936 and is estimated at 52,000,000 bbls. in 1937. Gasoline continues to be the most important oil product used, followed by oil for domestic and commercial heating. The smallest of the specialized oil markets is that of range oil, but this is of particular interest because of the rapid expansion of this market within a few years and the continuing expanding sales of small oil burners using this type of oil.

The four refinery products included in Table 3 represent approximately 91 per cent of the crude oil required for their manufacture. On this basis, the estimated crude requirements for Illinois were 54,500,000 bbls., and for the entire group of states named above, they were 130,000,000 bbls. in 1936.

Table 3 shows the demand for principal products in Illinois and adjacent states—Indiana, Wisconsin, Minnesota, and Iowa. Data on consumption of gasoline by states is available for 1936 and 1937. For other major products, data on consumption is available for 1936 and is estimated for 1937.

For heating oils, an increase of 13 per cent in 1937 over 1936 is assumed, based upon past records of growth of the heating oil market. For residual fuel oil, an increase of 6 per cent in 1937 over 1936 is estimated on a basis of increased industrial ac-




*Two 15,000-bbl. tanks as part of Illinois Pipe Line system, located at Owensboro, Ky.*

*Published by permission of the chief of Illinois State Geological Survey.

# BRADFORD
## SUPPLY COMPANY

## The Most Complete Oil Well Supply Service And Facilities In ILLINOIS

For over 25 years we have conscientiously served the Illinois-Indiana Area—and have continuously expanded our facilities.

Today we can serve Illinois better than ever with complete modern stocks and experienced personnel.

All lines of Standard Oil Field Supplies. Largest and most complete stocks reconditioned pipe, drilling tools and machinery.

All types of oil field repairs made at our machine and blacksmith shops. Pipe threading—Testing—Reconditioning — Forging — Welding — Stem Welding — Drill Stem Straightening — Joint Returning and Repair.

**BRADFORD SUPPLY COMPANY**

Oil and Gas Well Supplies

Robinson, Ill.

*Illinois Branch Stores:*

ST. ELMO
SALEM
CLAY CITY
CENTRALIA

*Main Office:* Bradford, Penna.



# BUTANE

Performance — Economy — Power

Local Storage — Prompt Deliveries

## Universal Butane Corporation

Centralia, Illinois

Box 461 Phone 1685


tivity in the latter year. For range oil, an increase of 20 per cent is assumed, based upon the rapidly expanding use of this product during the depression and immediately after.

**TABLE 3—SUMMARY OF DEMAND FOR PRINCIPAL OIL PRODUCTS IN 1936 WITH ESTIMATES FOR 1937, ILLINOIS AND ADJACENT MARKET STATES (INDIANA, WISCONSIN, MNNESOTA, AND IOWA)***

(Thousands of barrels)

| Product— | Illinois | Adjacent states | Total |
|---|---|---|---|
| Gasoline: | | | |
| 1936 | 28,379 | 47,786 | 76,165 |
| 1937 | 30,794 | 51,602 | 82,396 |
| Heating oils: | | | |
| 1936 | 11,505 | 9,250 | 20,755 |
| 1937 | 13,000 | 10,450 | 23,450 |
| Residual fuel oil: | | | |
| 1936 | 6,846 | 8,188 | 15,034 |
| 1937 | 7,250 | 8,680 | 15,930 |
| Range oil: | | | |
| 1936 | 595 | 641 | 1,196 |
| 1937 (est.) | 665 | 775 | 1,440 |
| Total of above products: | | | |
| 1936 | 47,285 | 65,865 | 113,150 |
| 1937 (est.) | 51,709 | 71,507 | 123,216 |
| Estimated crude requirements necessary to meet above demands: | | | |
| 1936 | 54,500 | 75,750 | 130,250 |
| 1937 | 59,500 | 82,200 | 141,700 |

*Minerals Yearbook, 1937, U. S. Department of the Interior, Bureau of Mines.

The crude petroleum requirements estimated to meet the above needs are calculated on a basis that the above products are equal to 91 per cent of the crude oil required to produce them.

### Refineries

For the supply of oil to consumers in the Illinois oil market area, refineries are located in the Chicago area, in southeastern Illinois, in the St. Louis area, and at scattered points elsewhere. The Illinois refineries are included by the Bureau of Mines, for statistical purposes, in the Central West refining district which comprises Illinois, Indiana, Kentucky, western Ohio and Michigan. The total capacity of the refineries in this district is 522,530 bbls. daily, of which 248,500 bbls. capacity, or 47.6 per cent, is located in the Chicago industrial area in Cook and Will counties, Illinois, and Lake County, Indiana. This refining district, therefore, is the principal center of supply of refined products. The distribution and capacity of refineries in the Central district are as follows:

**TABLE 4**

| Location— | Number of plants | Daily capacity (bbls.) |
|---|---|---|
| Chicago district (incl. Indiana) | 15 | 248,500 |
| Other Illinois | 6 | 98,500 |
| Ohio | 13 | 85,430 |
| Kentucky | 8 | 27,800 |
| Michigan | 23 | 62,500 |
| Total | 65 | 522,530 |

The largest aggregate and individual capacities are located in the Chicago industrial area including Lockport, and from these plants are shipped oil products to the heavily populated districts bordering Lake Michigan. The other important refinery locations in Illinois are in the St. Louis area near Alton and in the southeastern Illinois field. Refineries in Indiana are all located in the Chicago industrial districts with the exception of a small refinery of 200 bbls. daily capacity, located at Troy.

Refineries in Kentucky are all small in size, the largest being at Latonia, near Cincinnati, Ohio, with a capacity of 8,000 bbls. These refineries probably serve a local market and do not extend their activities into the Illinois area.

The principal refineries in western Ohio affecting the central states' oil market are concentrated mainly in the Toledo area, with smaller refinery capacity located at Findlay and Lima. About 80 per cent of this refinery capacity is located at Toledo. A portion of the Minnesota oil market is supplied by these refineries through shipments over the Great Lakes through the Sault Ste. Marie canal. The extent of this market is indicated by shipment of oil products through the American

and Canadian canals at Sault Ste. Marie, Mich., and Ontario, for the period 1931 to 1937.

In addition to refineries in existence previous to 1937, four small refineries have been erected to serve the new fields. Three are located in Centralia with a reported daily capacity of 2,000 bbls. each, and one at St. Elmo with a daily capacity of 3,500 bbls. These refineries are entering the market in a particularly difficult period in view of the keenly competitive conditions in the residual fuel oil market. Unless market outlets for this product are established in industrial markets such as St. Louis or Chicago, a local market must be developed. In view of the abundant supplies of coal locally, this may be somewhat difficult to do.

### Competitive Position of Illinois

The revival of oil production in Illinois has aroused considerable interest as to its competitive effect upon other oil-producing states, particularly in the Mid-Continent field. The total added contribution to date, as has been shown above, is as yet of small significance, measured in terms of the nation's daily demand for crude oil. The contribution from Illinois rose from 1.5 days' supply in 1936 to 2.4 days' supply in 1937, or an additional 0.9 of a day's supply. In that same year, production in the entire oil industry rose to an equivalent of 56 days' added supply.

The apparent competitive effect of this new supply from Illinois has been restricted mainly to fields in Oklahoma, Arkansas and Kansas, which states have in part supplied the Illinois oil market territory with both crude oil and gasoline.

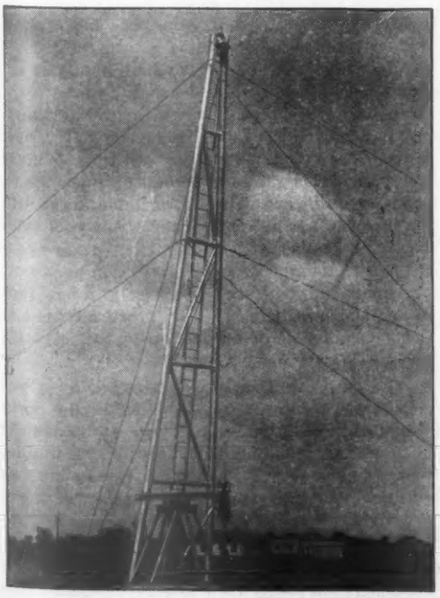
Shipments of crude oil from Mid-Continent fields in 1937 were reported as follows:

**TABLE 5—CRUDE OIL RECEIPTS AT REFINERIES IN ILLINOIS, INDIANA, AND WESTERN OHIO***

| From:/To: | Indiana | Illinois | W. Ohio | Total |
|---|---|---|---|---|
| Oklahoma ..... | 40,367 | 21,445 | 17,575 | 79,387 |
| Texas ..... | 6,265 | 3,291 | 2,918 | 12,474 |
| Other states ..... | 24,035 | 15,734 | 6,922 | 46,691 |
| Total ..... | 70,667 | 40,470 | 27,415 | 138,552 |

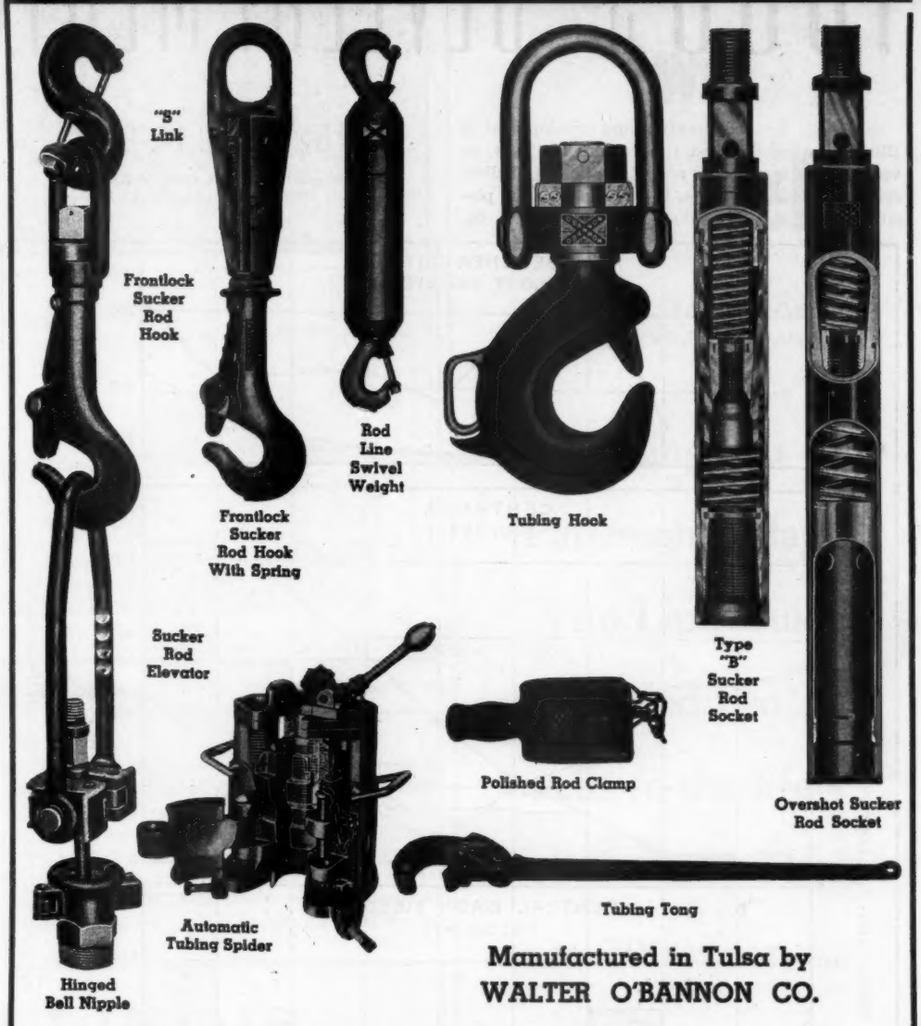
*Source: Minerals Yearbook, 1938, page 486.

The added supply of petroleum produced in Illinois in 1937 over 1936 (2,951,000 bbls.), all of which is presumably disposed of in refineries in these states, is equivalent to about 2 per cent of crude oil also received by refineries in these states from Mid-Continent fields. In 1938, increased production in Illinois from the new fields, estimated at 15,000,000 bbls. above 1936 production, may displace about 10 per cent of Mid-Continent crude.



*One of the masts placed over wells for rod and tubing jobs by the Gulf Oil Co.*


HERE'S THE LINEUP
*for Safer and Faster*
PULLING AND FISHING




Manufactured in Tulsa by
WALTER O'BANNON CO.

**QUESTION:** Give three reasons why operators can feel sure of accident-free pulling jobs when they use O'Bannon rod and tubing tools?

**ANSWER:** *FIRST, the design is right. The most metal is located where the stresses come. Projections are eliminated by streamlining. Latches will open only at the will of the operator. In all, they are compact and handle with ease and speed.*

*SECOND, the correct materials—modern alloy steels—are used throughout. Heat treating gives excess strength for emergency overloads.*

*THIRD, they are proved in the field. Operators specify them because of their strength and safety. Pulling gangs swear by them because they are easy to handle.*

**QUESTION:** Why does an operator know he will get his fish with an O'Bannon sucker rod socket, instead of just hoping he will?

**ANSWER:** *Fitted with the correct slips for the job, an O'Bannon socket just CAN'T set down on top of the fish without catching it. Slips and bowls are made of high alloy steels, then heat treated, and their strength and long life is truly amazing.*

Don't take chances with men's lives or with your equipment. Ask your supply store or your O'Bannon representative to demonstrate these tools and sockets to you.

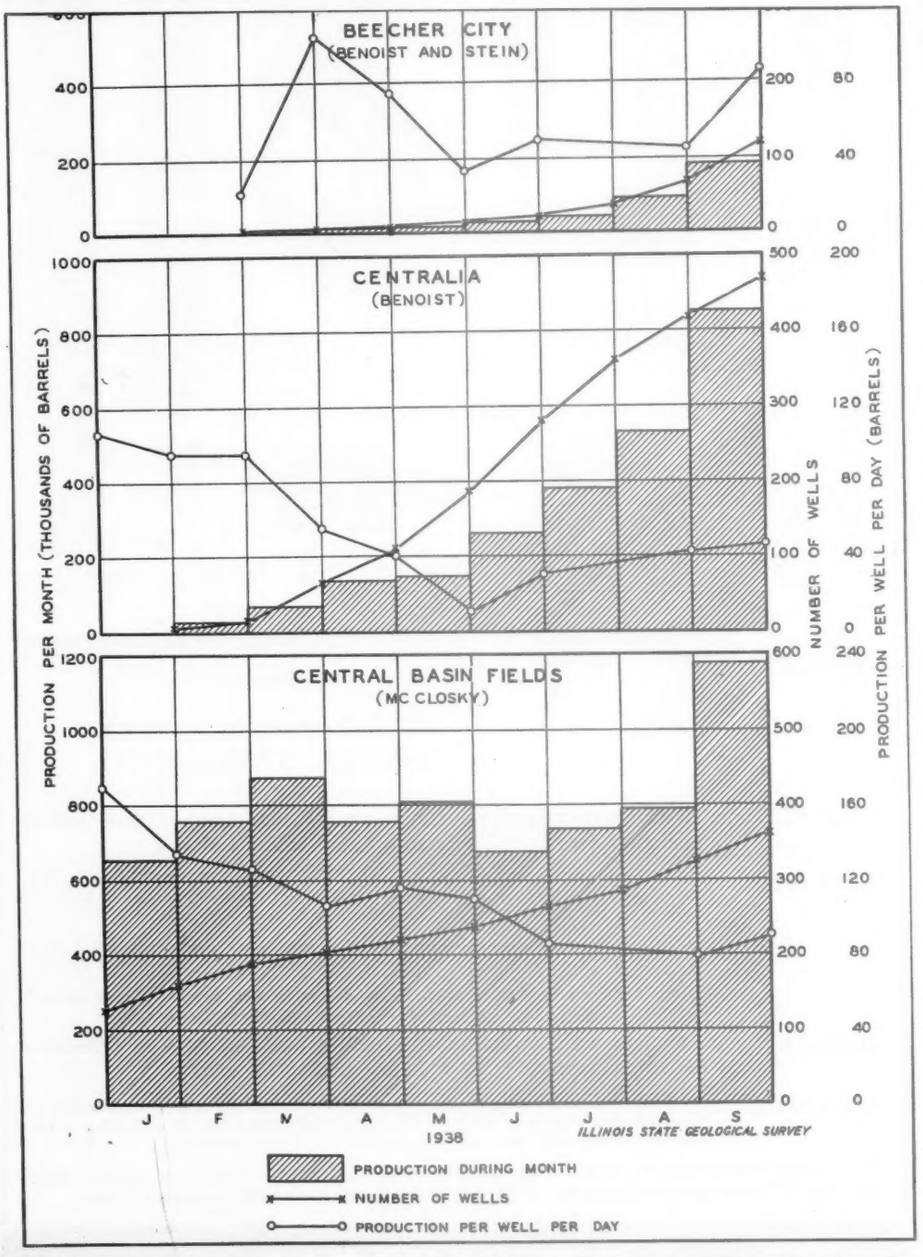
O'BANNON
*Safety*
ROD and TUBING TOOLS
SUCKER ROD SOCKETS

# 1938's DEVELOPMENTS IN ILLINOIS

By Alfred H. Bell

Geologist and Head, Oil and Gas Division, Illinois State Geological Survey

Exploration and development in Illinois during the past three years has now revealed what is probably one of the largest shallow reserves of oil known on the continent. The possibilities for deeper production remain largely unexplored. The favorable location of these reserves with respect to existing pipe lines, railroads, and refineries and to large markets for refined products in the rich industrial and agricultural Middle West has given these reserves an importance in the eyes of the industry that is beyond their proportionate contribution to the nation's daily output. In spite of the fact that Illinois' daily production has increased seven-fold since 1936, it still amounts to less than 2½ per cent of the total for the United State.




*Monthly production, number of wells, and average production per well per day from January 1, 1938, to September 30, 1938, in the Illinois areas*

The writer's purpose in this article is to review briefly some of the outstanding events in the Illinois oil and gas industry since January 1, 1938. Previously most of the new development was in fields producing from limestone—the McClosky "sand"—an oolitic limestone in the Ste. Genevieve formation of the lower Mississippian or Iowa series. The development of the McClosky fields has gone forward during 1938, but it has recently been overshadowed by that of the shallower sandstone fields on the western side of the basin area. At the end of September 55 per cent of the production from the new areas came from the sandstone fields and 45 per cent from the limestone fields.

## Course of Development

The course of development since the beginning of 1938 in three principal areas of new production is graphically illustrated on this page. The development of the Lake Centralia (Salem) field is not shown graphically because its discovery was so recent (July 6, 1938). For an index map of the fields discussed see Page 110.

In the Central basin fields producing from the McClosky, the rate of drilling has been rather steady through the first nine months of 1938. A rise in the rate of drilling is noted in August and September, following the discovery of the North Aden or Fairfield pool in which average initial production of 850 bbls. has been recorded for seven wells. Average production per well per day in the McClosky fields shows a general decline; the exceptions to this are a rise in April due to the drilling of several large wells in the Noble pool and a rise in September as a result of the large wells in the North Aden pool. Total production per month has fluctuated, with a notable rise to a new peak in September. There has been practically no artificial curtailment of production in the McClosky pools.

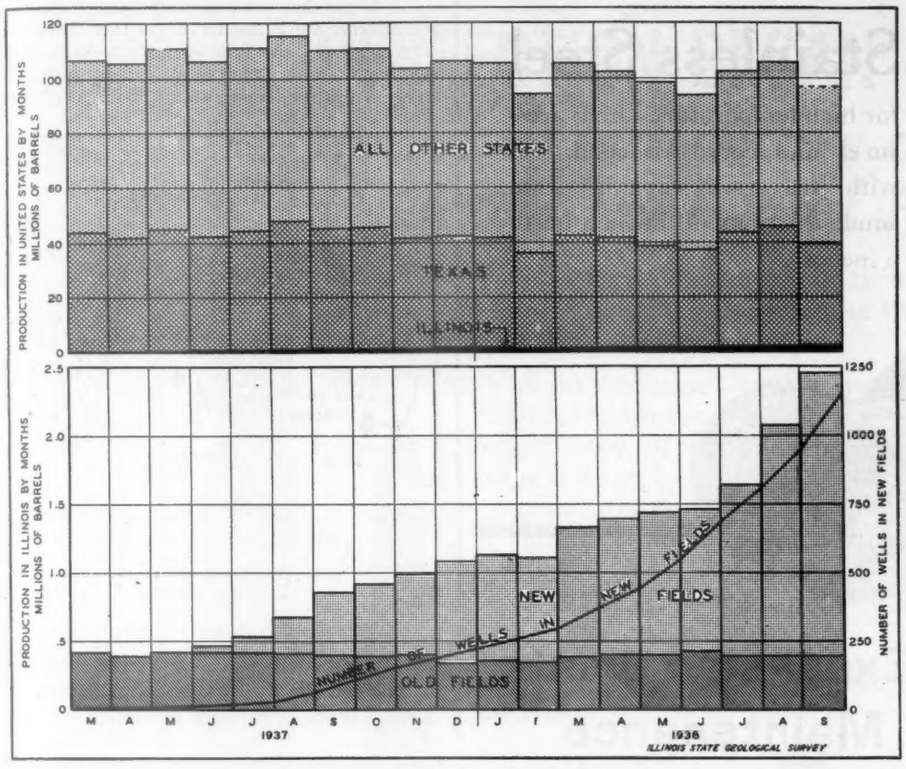
The Centralia field was discovered by a well completed November 30, 1937, about 2 miles northwest of the city of Centralia. The very rapid rate of drilling in this field in the summer of 1938 was due to the location of a part of the productive area within the city limits. A reduction in the rate of drilling beginning in July may be noted in the graph.

Curtailment of production by oil buyers in the Centralia field began April 20 when purchases were reduced to an amount equivalent to an average of 20 bbls. per well per day. Although curtailment

*Published by permission of the chief of Illinois State Geological Survey.

was in effect up to August 8, the allowable per well was raised by steps until it equaled the potential. It is interesting to observe that a notable drop in average production per well per day, from 96 to 54 bbls., occurred during the month of March prior to drilling. Nevertheless, the rate of drilling is now rising rapidly. The curve of average production per well per day reflects artificial curtailment of production in varying amounts.

Total production of the Beecher City field up




*Monthly production of crude oil in the old and new fields of Illinois, Texas, and the United States, March, 1937, to September, 1938*

any artificial curtailment. However, in spite of declines in average production per well, the trend of the total production has been steadily upward, with an exceptionally large increase in September.

In the Beecher City (Louden) field the rate of drilling has been comparatively slow, because the major part of the acreage is owned by one company and because there is as yet little or no town lot to the end of September, 1938, has been small as compared with the Centralia or Central basin fields. However, there is a large undrilled acreage proved for production (estimated at more than 15,000 acres) and several oil-bearing zones, only two of which (the Stein and Benoist) are as yet being exploited. September's production was approximately double that for August and probably a much higher


# OLNEY, ILLINOIS

**"THE WONDER CITY OF THE ILLINOIS OIL BASIN"**

**(St. Louis Globe Democrat, June 27th., 1938)**

**Olney is the county seat of Richland County which has the lowest relief load of any county in the State.**

**Imagine, if you can, a city of 10,000 with no colored or foreign population, with fine schools, churches and other public buildings.**

**Municipally owned City Park, Swimming Pool and Airport.**

**Two trunk railroads, Baltimore & Ohio and Illinois Central.**

**Junction of Federal Route No. 50 and State Route No. 130.**

**Now the district headquarters of many major oil corporations and supply companies. A delightful and safe city in which to raise your family and a hustling city in which to operate your business.**

**Olney welcomes the right kind of people and substantial firms to make it their future home. Good office space now available from new construction.**

**For further information write**

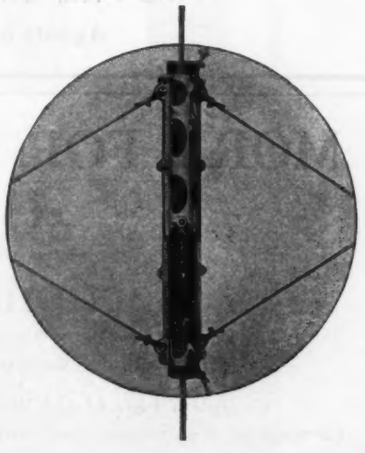
**OLNEY CHAMBER OF COMMERCE.**



# Wire lines good for two extra wells

(UNSOLICITED REPORT FROM LARGE COMPANY)

"By using two Patterson-Ballagh Wire Line Guides we added two wells to the life of the line. These are 7000-foot wells."



**PATTERSON-BALLAGH CORP.**

Plant and General Offices: 1900 E. 65th St., Los Angeles, Calif. • Mid-Continent Office: 1507 Maury St., Houston, Texas • New York Office: 39 Cortlandt St., New York City

BADGER
EXPANSION
JOINTS

## Stainless Steel

for high temperatures, high pressures and corrosive conditions with traverses ranging from small fractions of an inch up to 6 inches.

## Corrugated Type Expansion Joints that Require no Maintenance

The above two headings tell briefly the story of Badger's service to refineries and pumping stations where lines are subjected to expansion and contraction, lateral distortion and vibration. There's a Badger Stainless Steel or Copper Expansion Joint for almost any expansion problem that may arise.

Badger engineers, who know oil refinery operations, have made a study of these problems for years. They know from experience how to make expansion joints take care of them. They know how to manufacture expansion joints and how to obtain the fullest value from controlled heat treatment. In short, Badger Expansion Joints are made by engineers.

**E. B. BADGER & SONS CO.**
**75 Pitts Street, Boston, Mass.**
***Agents in Principal Cities***

## MORE FOR YOUR MONEY
## OCTO
(Reg. Trade Mark)
## Sectional Cottages

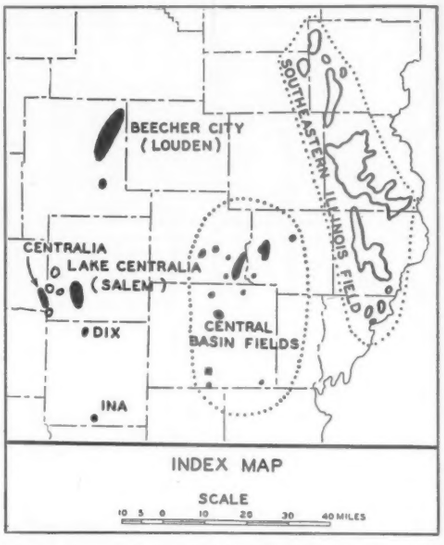
Portable — 100% Salvage — Sizes from 1 to 5 Room
with Optional Bathroom Unit and Screened Porch.

Complete Line of Oil Well Cement — Timbers — Lumber
Corrugated Roofing — Sand and Gravel — Paints — Builders Hardware

**ST. ELMO HOUSING COMPANY**
ST. ELMO, ILL. TEL. 5K

production level will be reached before the field is fully developed.

The Lake Centralia or Salem field, the most recent of the new fields, is remarkable for several reasons. First, the Benoist sand wells, some with initial flows of more than 1,000 bbls., are considerably larger than those in other fields (Centralia and Beecher City). Second, it has rich saturation in the McClosky, thus extending McClosky production about 30 miles farther west than previously known. Third, it has oil saturation in the Aux Vases




*Index map. New fields are shown in solid black; old fields in outline*

(basal sandstone of the Chester series) that may prove to be commercial. On September 28 this field had 42 oil wells producing a total of 8,834 bbls. per day, an average of 210 bbls. per well. This is much higher than for any other field in the state. The productive area has not yet been defined, but at least 8,700 acres appears proved for production.

Drilling development in all the new fields of the state and the resultant increases in oil production over a period of 19 months from March 1, 1937, to September 30, 1938, are shown on Page 109.

The lower bar chart shows monthly production for the state, divided into old and new fields, beginning June, 1937. A rapid increase in production during July, August, and September, 1937, was the result of the early drilling in the Central basin fields where many wells having initial productions from 1,000 to 2,500 bbls. per day were drilled. However, these wells also had rapid early declines, and this is reflected in the gradual flattening of the production curve during the next nine months, especially during the three months, April to June, 1938. About this time the added production due to the increased drilling in the Beecher City field began to be noticeable, and this was further augmented by the discovery of the rich Lake Centralia and North Aden fields.

Up to date (October 14, 1938), the new fields of Illinois have produced about 15,000,000 bbls. of oil in 16 months and about 1,200 wells are producing. At the end of September average production per well per day in the new fields was 67 bbls. This is in contrast to an average production per well per day of 0.9 of a barrel (12,698 bbls. from 13,935 wells) in the oil fields of the state. The daily production for the whole state (88,000 bbls. per day at the end of September) is approaching the peak rate of production (approximately 100,000 bbls.) for the old fields which was reached in 1908. It seems probable that this peak rate may be reached or exceeded by the end of 1938.

A conception of the small size of the Illinois production in comparison with that of Texas and of the United States during the past 19 months may be gained from the upper bar chart on Page 109.

# PERFECTION BEGAN BEFORE 40

## *in the manufacture of* SPANG *Cable Tools and Packers*

In the forty-plus years since they were first manufactured, Spang Cable Tools and Packers have become the Standard of Perfection for tools of their kind.

"Forty years of experience" really means something in drilling-tool manufacture. It means knowledge of oilfield requirements, knowledge of metals and of precision construction. And it means more satisfactory results and lower costs, wherever Spang "Higher-Standard" Cable Tools are used.

Make it a point to "SPECIFY SPANG"!

*Fig. 511 Spang Weldless Jars*

*Fig. 524 Spang Twisted Bit*

*Fig. 505 Spang Prosser Rope Socket*

*Fig. 718 Spang Hook Wall PACKER*

*Fig. 725 Spang Wall and Anchor PACKER*

*Fig. 526 Spang Straight Bit*

**SPANG & COMPANY, Butler, Pa.**

**SPANG CABLE TOOLS**

The HIGHER STANDARD

# Wells Drilling Through Mines Require Casing

For years operators of drilling tools and their drillers have been fighting the vagaries of nature in their search for oil. Machinery has often been moved under almost impossibly muddy conditions; formations have been encountered that were so hard it seemed as though no steel would penetrate them; soft sluffing formations kept the hole filled with cavings; on many rotary operations pipe stuck or porous sands and cavernous limestones allowed the drilling fluid to escape through the bottom of the hole. But when drilling operations got under way in the Centralia area, a condition created by man appeared to cause drillers further worry.

The search for mineral wealth in the State of Illinois has provided much of the subsurface geologic information through the drilling of test holes in search of commercial coal veins. A large number of towns in the state owe their existence to the coal veins which have produced many tons of coal and which have provided miners with years of work. There are numerous mines still active in the state, many of them only working part time or only active during the winter.

A glance at the map (Figure 1), which is contoured on the No. 6 (Herrin) coal, shows the Marion County Coal Co.'s Glen Ridge mine covering practically all of Sections 30 and 31-2n-1e and part of Sections 25 and 36-2n-1w. Centralia Coal Co.'s Nos. 3 and 4 mines occupy a great part of Sections 6 and 7-1n-1e and part of Sections 1 and 12-1n-1w. The Nos. 1 and 2 mines of the same company cover part of Section 18 and practically all of Section 19-1n-1e and part of Section 13 and all of Section 24-1n-1w. The town of Centralia lies in Sections 7, 8, 17, 18, 19, and 20-1n-1e, and the recent drilling development was in Sections 35 and 36-2n-1w, Sections 1, 2, 12, 13, and 24-1n-1w, Sections 7, 18, and 19-1n-1e. It is evident that wells drilled in this section passed through coal mines.

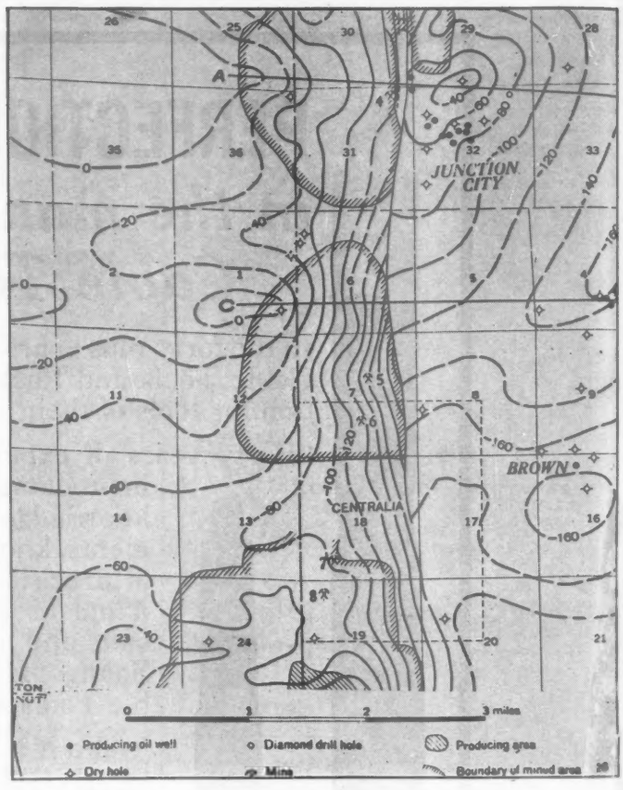



*Fig. 1—Map of Centralia area contoured on the Herrin (No. 6) coal showing the mined area. From Bulletin No. 10 of the Illinois Geological Survey. Wells drilled during recent activity not shown*

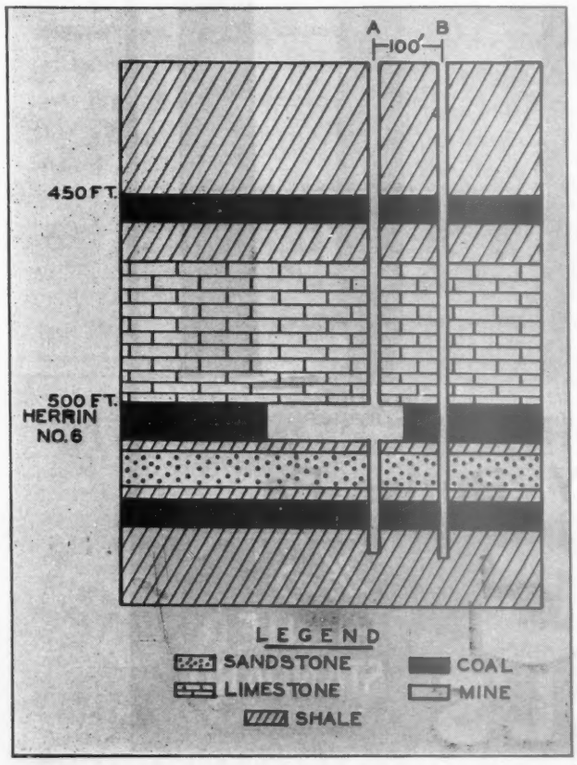



*Fig. 2—Diagram room and pillar method of mining showing how one well drilled in mined area can hit a coal mine and its neighbor only a short distance away misses*

The most common method of mining coal from subsurface veins is the "room and pillar" system, whereby a support equal to the size of the excavation is left standing (Figure 2). This means that under a given area that has been mined, there will be a succession of pillars and rooms, and drilling of a well for oil has an even chance of striking one or the other. Maps showing the location of the rooms and pillars are kept by most mine operators, but they are not open to public inspection. Some of the mines in the area have been abandoned for many years and the entries sealed. The only information to be gained as to the location of the rooms is from memories of mining men who removed the coal.

The Herrin (No. 6) coal is the most widely mined vein, but coal from other levels has been removed in many of the mines. Covering all the possibilities, there was danger of striking a mine shaft between 450 and 750 feet. The coal beds do not lay level, the No. 6 coal having a dip of 3 degrees or 140 feet in a half mile in Centralia Coal Co.'s No. 5 mine.

Most of the laws in Illinois which have to do with actual drilling of a well are those passed to protect mines. Every vein of coal over a certain thickness must be reported to the state Mine Bureau; coal veins must be cased; permission to abandon a well must be obtained from the bureau and the plugging of the well supervised by their representative to assure the proper sealing of all commercial coal veins; proceduce while drilling through a mine must meet the approval of the Mine Bureau, the principal requisite being the casing of the hole in a prescribed manner. Ohio and Kentucky have similar laws for the protection of coal veins and mines.

### Trouble Not Anticipated

Rotary contractors coming to the Centralia field did not anticipate the trouble which the mines were to cause them as none of them had any previous experience with this obstacle. The first knowledge many of them had of the existence of the mine was when native oil men who had drilled some of the wells in the Sandoval area asked, "What will you do if you hit the mine?" Answers to this query were rather vague, as all the implications of the question were not apparent. Drillers found the need for an answer as soon as they started penetrating mine shafts.

Most of the mines have limestone "roofs" and drillers were surprised when, after drilling on a hard lime shell at about 650 feet for several hours, the drill stem suddenly started falling and return of circulation ceased. Bottom of the hole was then found to be from 5 to 10 feet deeper. It was apparent that use of mud and fibers would be useless under the conditions, and after hearing of the laws concerning such cases, casing was set and cemented and the wells completed, often after much difficulty.

The situation being new to rotary operators, a

technique had not been developed to satisfactorily shut off the mine shafts, as the casing parted on some wells and the cement job did not hold on others. Some had the casing whip in two in the mine shaft and attention began to be centered on this problem.

The first consideration was the cost of drilling the well, contractors refusing to take work unless provision was made for the expense of drilling through the mine. Some contractors asked $1

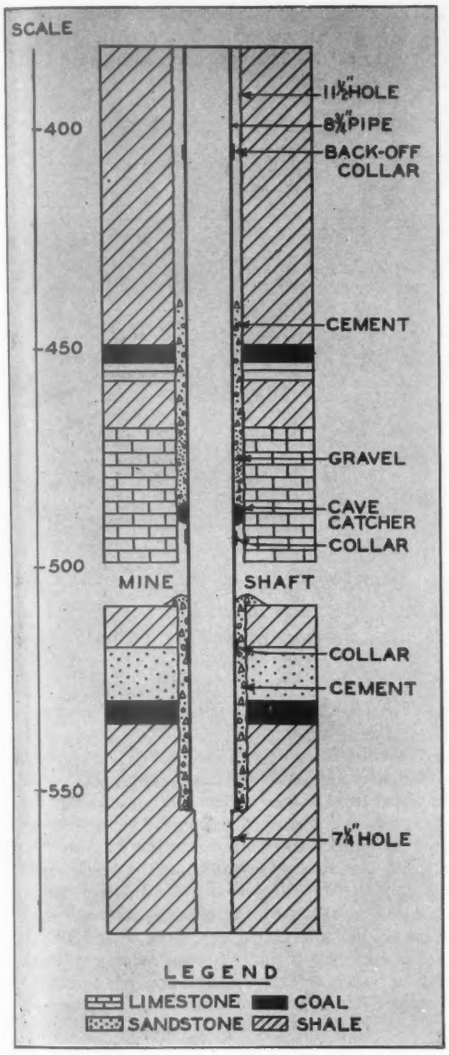



*Fig. 3—Diagram of method of setting pipe through a coal mine so no collar is in the mine shaft and water is shut off from below and above*

per foot more for drilling in a mined area, and others stipulated that in case a mine was encountered the owner of the well was to assume all expense until drilling was resumed below the mine casing string. Further delay caused by parting of the casing was also to be at the well owner's expense. Owners of wells hoped they wouldn't hit the mine and later started consulting owners of mine maps, who would, for a consideration, locate the well over a pillar. Oil men did not relish paying from $50 to $100 for the assurance that they would not hit a mine shaft, and the final arrangements were that in case a mine was encountered after locating the well by the mine map, the money would be refunded.

As no spacing rules are in effect in Illinois, this worked on some locations, as it was possible, by moving the well from the center of the lease, to get over a pillar. However, the pillar in some cases gave way after the hole passed through the coal, and circulation was lost, causing a casing job. In some cases the leases were so small and the "rooms" so large that it was impossible to locate the well where it would not enter the mine.

A definite procedure was then adopted for drilling in the mined areas. Holes were started with either an 11½-inch or a 12¼-inch bit and this size hole carried to 60 feet below the mine level. In case no effects of the mine were apparent, the hole was reduced to 8¾ inches and drilling of that size hole continued to bottom, where 7-inch O.D. casing was run. If the well encountered a mine shaft, the mud pump was slowed down to conserve the drilling fluid, trucks started hauling water to the rig for a circulating medium, and the larger hole drilled to 60 feet below the mine level. Generally 8½-inch casing was then run with a plain shoe on bottom. Care was taken to see that there was no casing joint in the mine shaft and a cave catcher was placed on the first joint above the mine.

Cementing of the pipe in place was in two stages. Casing was first set on bottom and cement slurry sufficient to fill the pipe and the annular space around it to the mine level, pumped into it. No pressure was required to get the cement in the pipe, as only a 60-foot head of water was opposing it. Generally about 75 sacks were sufficient for this purpose. As soon as the cement reached the bottom of the casing, the pipe was elevated to allow the cement slurry to equalize in and around the pipe. Pipe was then set back on bottom. The second stage consisted in slowly dumping from 1 to 2 yards of gravel around the outside of the pipe. This was caught by the cave catcher just above the mine, forming a bridge. Cement slurry was then pumped around the outside of the pipe and allowed to settle on top of the bridge (Figure 3).

Some operators used the regular two-stage cementing collars and others the manufactured cave catchers. In most cases, however, cave catchers


# STURDY ENOUGH TO STAND THE "GAFF"

***—yet compact enough to be used in limited space.***

The swing to smaller and more portable drilling equipment has increased the need for McKissick Safety Traveling Blocks. Made in sizes, ranging from a single sheave block with a ten inch sheave weighing less than 100 pounds, which is especially adapted for seismograph and core drilling, to a four sheave block with 26 inch sheaves weighing almost 3000 pounds, suitable for rotary drilling in shallow fields.

McKissick Traveling Blocks are available with two, three and four sheaves.

***A Complete Illustrated Folder Will Be Sent On Request.***

## McKISSICK PRODUCTS CORP.

Dawson Road Phone 5-2121

TULSA, OKLAHOMA

were improvised from canvas cloth or light sheet metal which would "ball" when the pipe was dragged up and down the hole several times. Second-hand casing of the proper size was at a premium for a time, as operators did not feel like buying a new string for such work. On most mine jobs a back-off collar was installed four or five joints above the cave catcher and an attempt made to salvage the upper part of the mine string. This was successful in most cases. Completion of the hole was with a 7¼-inch bit.

### Pyramid Method

In an effort to eliminate an extra string of casing and provide a better method of sealing off the mines, the Adams Oil & Gas Co. in conjunction with the Halliburton Oil Well Cementing Co. attempted to build a cement pyramid (Figure 4) in a mine. A hole could then be drilled through the cement and the well completed.

After hitting the mine, no effort was made to drill deeper on the well selected for the "pyramid job." Three batches of 50 sacks of cement mixed with 4 per cent Aquagel were pumped into the hole through the drill pipe at three-hour intervals and then allowed to set for 24 hours. The next treatment consisted of two batches of the same size and was allowed to set 36 hours; this was followed by two treatments of 75 sacks each that were allowed to set 24 hours. By this time the cement had built a pyramid from the floor of the mine to bottom of the hole. However, the bond between the cement and the mine roof was not strong enough to withstand the pressure of the drilling fluid, and circulation was lost. The treatment was continued, only small batches of cement being required to make a seal, but in every case attempts to complete the well met with failure, as the contact between the cement and the bottom of the hole was not sufficient to withstand the pressure. It was also evident that to make this type of job successful would be more expensive than casing the well when such a short string was required. Eleven batches were run in all, 680 sacks of cement being used.

One operator who anticipated hitting an abandoned mine found fortune smiling on him. The mine was penetrated as expected, circulation lost, and the drilling of another hole in progress, when the drilling fluid started to return. The only explanation of this seemed to be that the well bore had hit a room that was sealed off from the rest of the mine and only a small amount of fluid was required to fill it. The operator continued drilling the 11½-inch hole to 60 feet below the mine level,

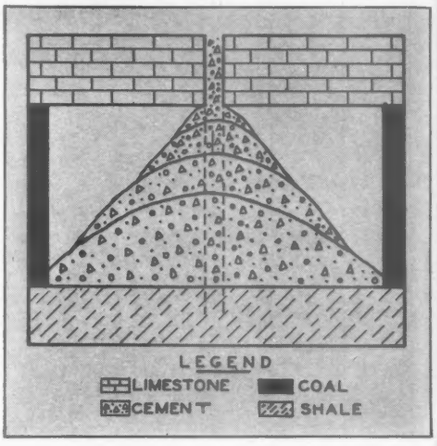



*Fig. 4—Drawing of the cement "pyramid" built in one mine in an effort to devise an effective method of drilling through mine shafts*

then reduced the hole and completed the well with no further trouble.

The situation was complicated by the presence of the several mine levels, and failure to strike the upper level was no indication that a lower level might not be encountered. One contractor encountered difficulties when, after starting with an 11½-inch bit, the hole was reduced at the level where a nearby well hit the mine. After drilling 75 feet, the well encountered a shaft, and it was necessary to ream the hole above the mine and drill the anchor hole below it. This required many truck loads of water, and the uncased upper hole started to crater. Running of the mine string put the well in shape where it could be continued.

Presence of mine shafts are no hindrance to cable tools, as they can proceed with drilling until a casing string is required due to a caving hole or heavy water below the mine level. Some producers used spudding machines for drilling in the mined areas, particularly before the rotary operators developed a successful method of circumventing this trouble. If no trouble developed after drilling through the mine, there was still a substantial time saving with the rotary method. Exact figures on the number of rotary holes drilled through the mine are not available, but an estimate of cementing companies places the total near 100 wells.

Mine inspectors kept close check on wells drilling over the mined area and saw that the wells were properly cased for protection of the coal beds. They were particularly watchful of mines that were operating or had not been definitely abandoned.

### Future Mine Operations

Activity in the Centralia field, where most of the trouble due to mines has been encountered, is on the wane, with present attention centered on the Lake Centralia and Louden areas. There are numerous mines close to structural features that may develop into oil fields in both Illinois and Kentucky, the largest of which is probably the


# MATTOON, ILLINOIS

## Mid-West Oil Center

**Population 16,500; area 4 square miles; elevation 725 feet.**

**Temperature**—Mean average, 53 degrees.
**Strategic Position**—Mattoon is situated at the intersection of the main line of the Illinois Central Railroad and the Big Four lines of the New York Central Railroad. 171 miles south of Chicago; 124 miles east of St. Louis, and 128 miles west of Indianapolis. State paved roads in all directions.
**Five Hotels**—Two U. S. Grant and Byers—well known in Middle West.
**Mattoon Country Club**—Has a sporty nine-hole golf course.
**Lake Mattoon**—Five miles south of city; cottages, excellent fishing, boating, swimming and picnicking facilities and tennis courts.
**Four City Parks**—Equipped with play apparatus. Lytle Park has a million and a half gallon swimming pool; a filtration system purifies the water every eight hours.
**Water**—From deep wells, softened and purified in Mattoon's new filter plant.
**Mattoon's School System**—Including the High School, is frequently quoted as an example of efficiency. Good parochial school.
**Utterback's Business College**—Trains and supplies efficient clerical help.
**Fifteen churches of all denominations.**
**Memorial Hospital**—Modern and well equipped.
**Three air conditioned movie theaters.**
**Factories**—Include the Brown Shoe plant; the Kuehne Furniture factory; and the Clark Foundry. Atlas Imperial Diesel Engine Works located in Mattoon is supplying engines for a number of oil drillers.
**Oil Headquarters—Twenty major companies, thirty-five independent companies. Some seventy individual operators.**

*For specific information address—*

THE ASSOCIATION OF COMMERCE
U. S. Grant Hotel Building, MATTOON, ILLINOIS.
J. Logan Gover, *President.* H. G. Seldomridge, *Secretary.*



# ATTENTION

## ILLINOIS BASIN OPERATORS

SEE US FOR

## General Machine and Welding Service

**These are part of the Oil Field Supplies Stocked:**

Broderick & Bascom Wire Lines
Acme Drilling Jars and Bits
Crotty Drilling Jars and Bits
Norris Bros. Balls and Seats
Crane Valves and Fittings
Axelson Pump Parts
Hough Balls, Seats and Working Barrels

## Lawrenceville Machine Company

MANUFACTURERS OF
Cable Drilling and Fishing Tools

Lawrenceville, Ill. Tel. 101A—101B

# Thousands in Use!

## SINGLE-HELICAL SPEED REDUCERS

PORTABLE "OILWELL" NO. 35 Pumping Pendulum Unit connected to four wells on a Panhandle lease. "Oilwell" Single-Helical Geared Speed Reducers are easily adapted to various pumping hook-ups . . . twin-crank and single-crank units, rig fronts and all kinds of back-crank arrangements.

YEARS of continuous service in all oil fields have proved the dependability, long life and high efficiency of "Oilwell" Speed Reducers —manufactured by Westinghouse-Nuttall exclusively for "Oilwell." These are the advantages:

Single-Helical Gears . . . cut by the accurate hobbing process (not the shaping process) . . . unvarying cross-section results in uniformity of contact, loading, deflection and wear . . . low helix angle providing contact of two full teeth at all times with minimum back lash and sliding action.

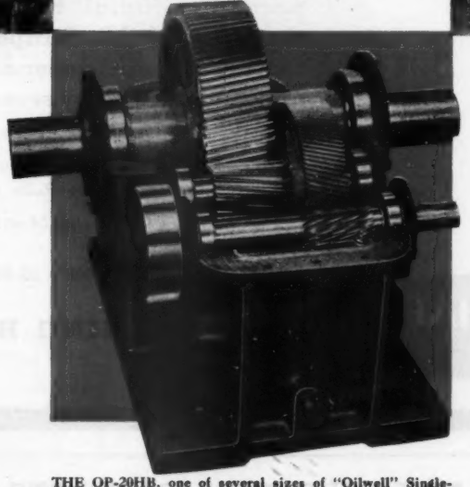
*BPT "Tough-Hard" Heat Treatment* . . . gives high factor of safety and prolongs the life of the gears.

*Tapered Roller Bearings on Heat-Treated Shafts* maintain precision alignment and accurate spacing of gears.

*Positive Lubrication* . . . provision made for ample lubrication at slow speeds and when starting . . . single-helical gears operate equally well in either direction.

*Symmetrical Case* . . . right or left-hand drive . . . shafts can be turned end-for-end to reverse meshing and loading of teeth, *thus doubling gear life.*

The nearest "Oilwell" representative will gladly explain these and many additional advantages.



THE OP-20HB, one of several sizes of "Oilwell" Single-Helical Geared Speed Reducers. Compact construction results from the use of tapered roller bearings on all shafts. The symmetrical design permits the shafts to be turned end-for-end, thus reversing the mesh of the teeth for double gear life.

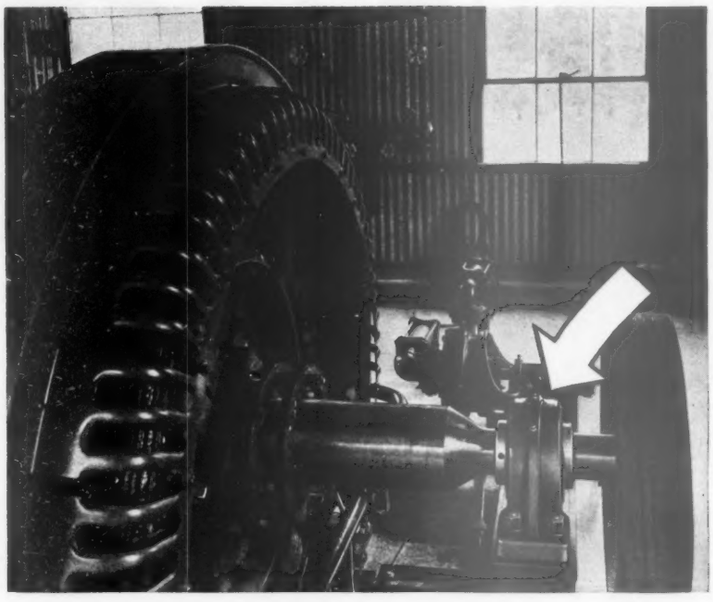
**OIL WELL SUPPLY COMPANY**

**Branch Stores in all Oil Fields**

***Subsidiary of United States Steel Corporation***

# "OILWELL"

# SHAFER BEARINGS



*Shafer Self-aligning Pillow Block used as a generator outboard bearing. Stroube & Stroube Oil Company, Talco, Tex.*

## Compact, and Dependable

**Shafer CONCAVE roller design puts generous roller bearing capacity into a compact and conveniently used standard bearing unit. Only Shafer combines: 1. Integral self-alignment, 2. Capacity for radial, thrust, or combined radial-thrust loads, 3. Simple adjustability. These features mean dependable bearing performance unchanged by severe operating conditions.**

**Available in a full range of sizes: Pillow Blocks • Flange Units • Take-up Units • Cartridge Units • Hanger Boxes • Flange-Cartridge Units Duplex Units • Conveyor Rolls • Radial-thrust Roller Bearings**

***Write for Catalog 14 with complete information***

SHAFER

**SHAFER BEARING CORPORATION • 35 EAST WACKER DRIVE • CHICAGO, ILLINOIS**

**SELF-ALIGNING ROLLER BEARINGS**



# TRY GILBERT'S COMPLETE FOUNDRY SERVICE

for

BRASS, BRONZE and ALUMINUM
INGOTS, CASTINGS, and SPECIALTIES

Bronze Stick and Bushing Stock in 13 inch Standard Lengths.
Complete Line of Graded Babbitt Metals and Solder.

**FOUNDERS—MACHINISTS—FINISHERS**

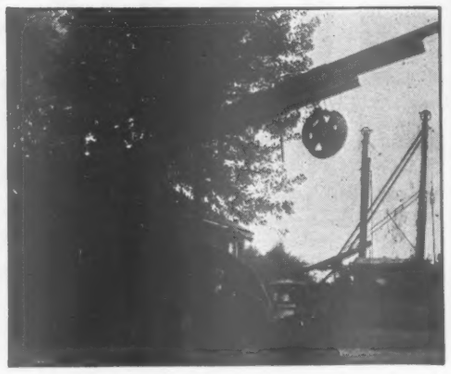
*Send Us Your Orders and Inquiries.*

**GILBERT BRASS FOUNDRY COMPANY**

Phone—EVergreen 8100

5036 Farlin Avenue St. Louis, Mo.


Spottsville dome in western Kentucky. A test is drilling on this structure at present, and the area is largely mined. Discovery of oil on this or similar



*Pumping unit on well drilled through the mine in the south side of the town of Centralia, Ill. Spudders in background did not hit mine*

structures near mine operations will necessitate the revival of the technique developed in the Centralia area.

Further trouble may be caused well operators due to the presence of air and water with sulfides and sulfur in the coal veins; these form sulfuric acid and other sulfur compounds which are highly corrosive to both iron and cement. Deterioration of casing strings and protective cement may proceed rapidly in some cases, making repair measures imperative.

## Pure Oil Co. Constructs Unique Water Station

Drilling and production developments in the Illinois basin have presented many problems, but one of the most pressing has been the supply of water for steam rigs and for drilling fluid. Smaller companies have been forced to purchase water from trucks due to the water rights on many of the small streams being unavailable.

Pure Oil Co. located their main water station on the Little Wabash River, which runs through the east side of Clay County, east of the Clay City development. This company has several steam rigs and frequently has 15 wells drilling concurrently. Four-inch lines were laid to the Clay City field and the Noble field. The main drawback to successful operation of the station was the periodic flooding of the Little Wabash River, which frequently inundates much of the territory on the east side of Clay County. If the station were to operate without interruption, it was essential that it be placed above the high-water mark.

A 30-foot well was dug about 40 feet back from the bank of the river and the pump station built on stilts and elevated 12 feet above the ground level. A concrete conduit, 5 by 5 feet, was constructed so its bottom would always be below the low-water level of the river. The end of the conduit was covered by a screen to prevent the entry of debris during flood times. Water is thus taken from the river, enters the well and then is picked up by a centrifugal pump driven by a 25-hp. motor. Casing in the well is 15½-inch.

The 6-inch discharge line from the centrifugal pump goes to a lake located on higher ground about 400 yards distance from the pump station. The lake is about 150 yards square and the water is emptied into the upper end. Silt and other suspended matter in the water is allowed to settle out before it enters the line pump suctions located at the lake's lower end.

Two 6¼ by 14-inch power pumps, driven by internal combustion engines burning gas, put the water into the mains.

# The Break Comes at the Weakest Point

## LARKIN Seamless Nipples and Plugs have no weak points!

Here are the "6 Reasons" for Larkin superiority:

1—Larkin Seamless Swaged Nipples are forged from NEW SEAMLESS full-weight pipe or casing—LEAK PROOF!

2—Larkin Seamless Bull Plugs are pressed from NEW flat strip steel—cupped and drawn into Bull Plugs which have neither seams nor welds at side or end—LEAK PROOF! This does not mean Bull Plugs made from Seamless pipe welded at one end.

3—Strength is paramount—Larkin fittings are as strong as, in fact stronger, than the lines on which they are used.

4—Exact uniformity of length—ends faced square—perfect threads, bevelled for easy starting—inside edges chamfered.

5—Length is sufficient to allow ample room for pipe tongs.

6—Label shows plainly the size and thread for convenience of field men and warehouse men.

**NEW HEXAGON SHAPE!** In sizes one inch and smaller, Larkin Nipples and Bull Plugs can be furnished in the new Hexagon Shape, at no extra cost.

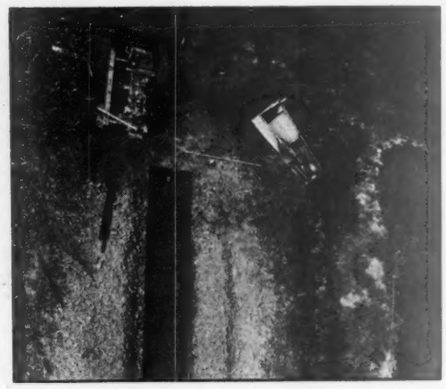
LARKIN PACKER COMPANY, INC.
ST. LOUIS, U. S. A.

# LARKIN PACKER CO.

## NEW RIGS

*(Continued from Page 68)*

duce their equipment to the extent where they can operate profitably on wells producing from above 2,000 feet. Machinery manufacturers are studying this problem carefully as it reverses the trend toward extreme weight in rigs which required a large investment on the part of the contractor. At present 131 rotary rigs are working on wells; from 140 to 150 rigs are in the basin, either working or available for work.

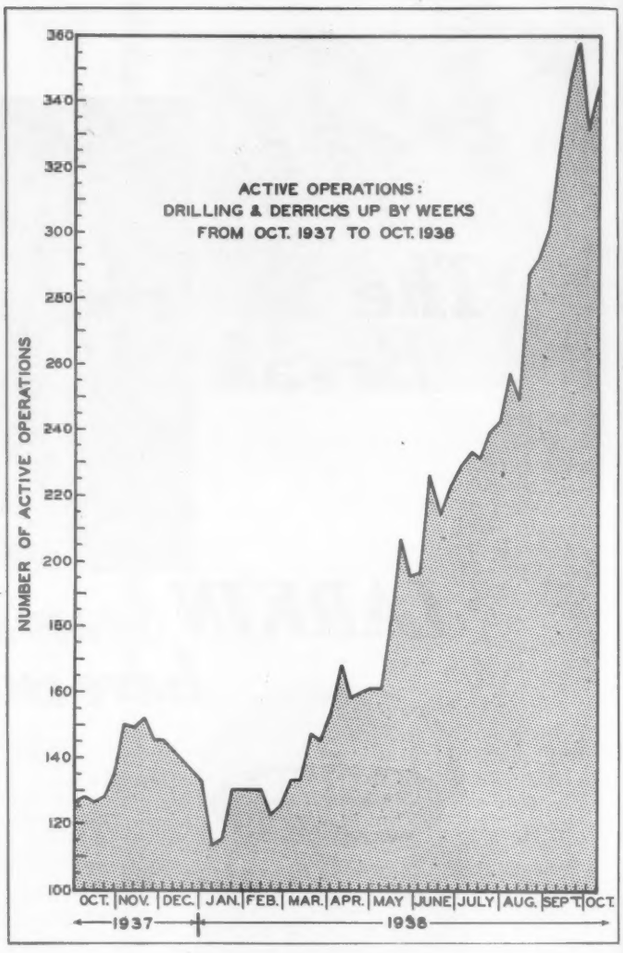


*View from derrick in Centralia of narrow slush pit which was dug by hand. Pit to right for offset location and indicates closeness of wells in field*

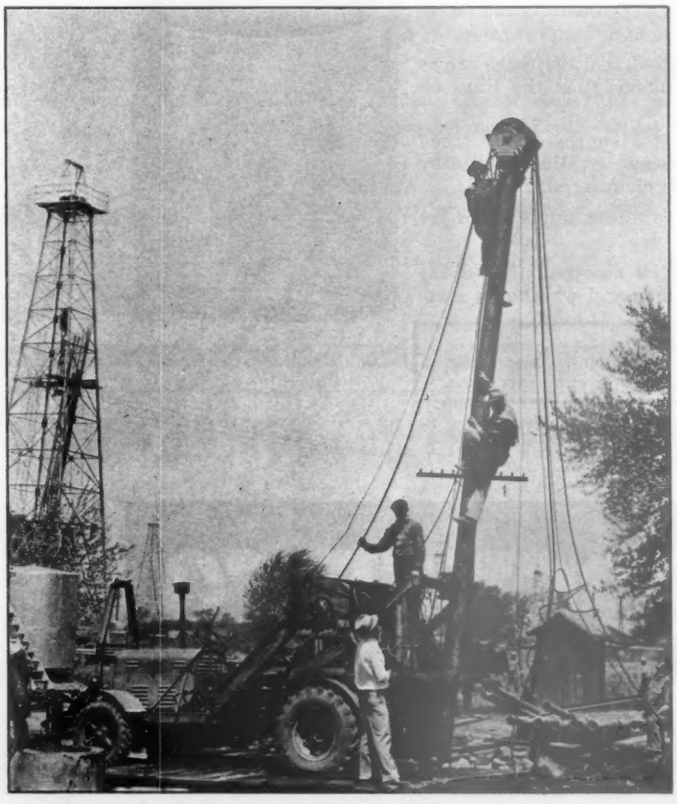
### Spudding Machines

With the start of the play in Illinois, owners of spudding machines which had been working spasmodically east of the Mississippi River, scented the opportunity and began arriving in the basin to make arrangements for the employment of their machinery. The old fields in the state had been drilled with standard rigs, drilling machines and spudders and there were many of these machines which were being used for occasional clean-out work in Illinois, Indiana, Kentucky and West Virginia.

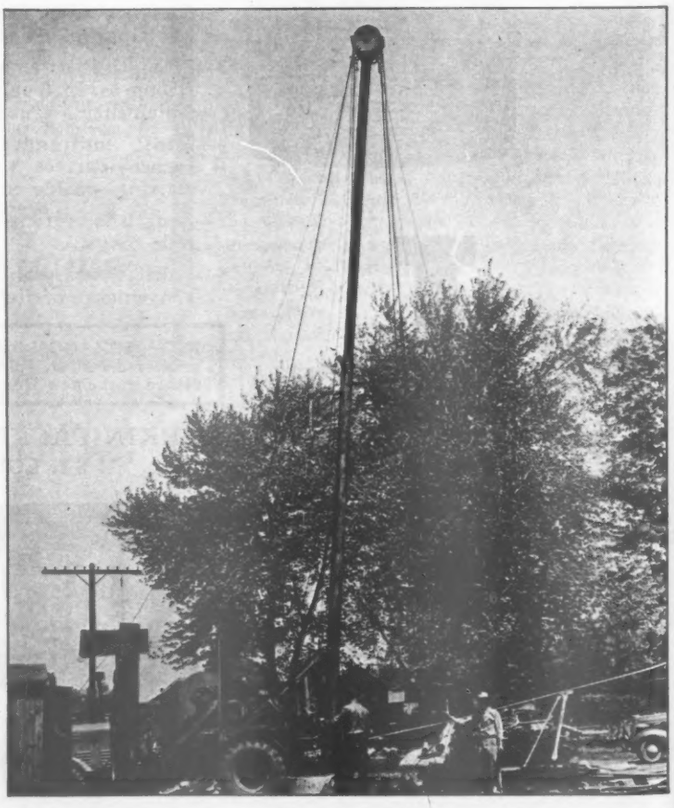
The Bartelso and Patoka discoveries were drilled with spudders and while rotaries have monopolized the drilling of most of the holes, spudding machines have found plenty of work. Besides the holes drilled from the surface by the larger machines in both fields and wildcat territory, nearly all of the wells in the Centralia town development were completed by the cable method. Louden and Lake Centralia will probably keep many of these machines busy during the next year while Kentucky will keep more employed. Some of these machines are of rather ancient vintage and




*The increase in drilling activity in Illinois is shown by the Active Operations chart. Decline in December, January, and February due to bad moving conditions. Sharp up-turn in spring with increase in drilling throughout summer and early fall due to new field discoveries.*



*The mast is raised and the drilling crew starts to string up the drilling and sand lines*

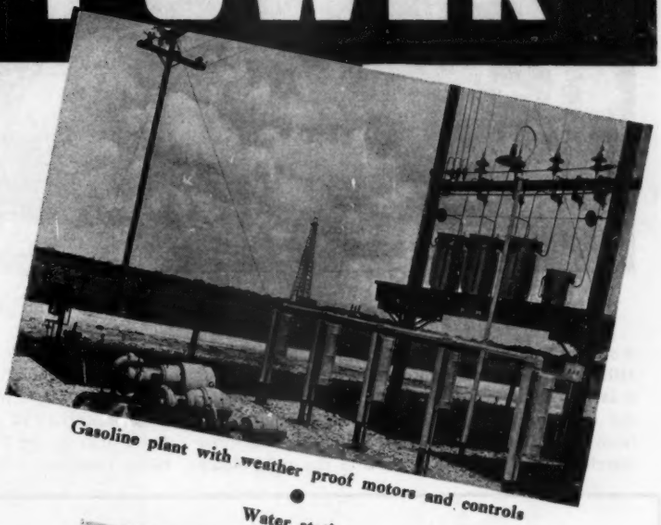


*With the lines strung over the crown block, the telescopic mast is raised hydraulically to 44 feet*

# Ready . . . FOR ANY JOB YOU DESIRE!

## Purchased ELECTRIC POWER

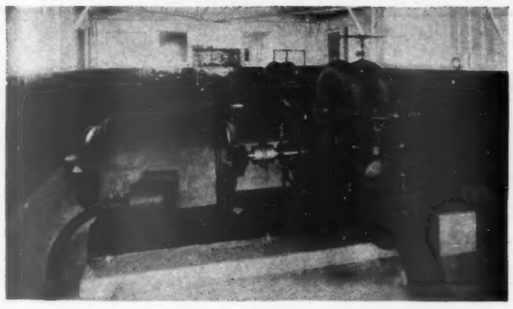
COMPACT . . . FLEXIBLE . . . and DEPENDABLE—that's why operators prefer Purchased Electric Power. It does its job smoothly and quietly; efficiently and economically. It is ready to do any job you desire, at any time and any place. Its modern power, available in any amount you need, at a price that will increase your profits. Ask your Electric Power Company for facts concerning your power problems.



Gasoline plant with weather proof motors and controls

●

Water station

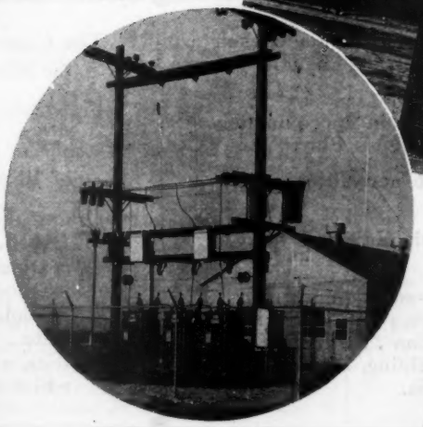


Interior of trunk line pipe line station

●

Compressor plant

A few typical uses for Purchased Electric Power in oil fields.

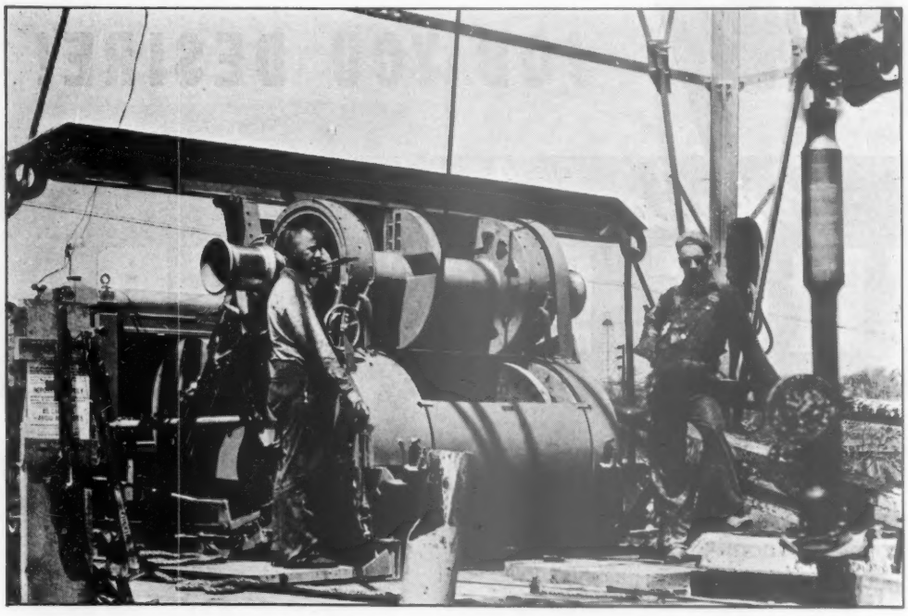


Exterior of trunk line pipe line station

PROFIT! Purchased ELECTRIC POWER

## PETROLEUM ELECTRIC POWER CLUB

only men long acquainted with them can keep them running. There is a marked tendency toward motorizing the spudding machines in an effort to get away from the costly water and boiler fuel. Some are driven through a belt from a motor mounted on an individual skid but generally either an industrial motor of around 35 hp. or a large rebuilt automobile motor is mounted on the back of the spudding machine. There have been several new beam type spudding machines purchased for big-hole work and the new Mobil-hoist, which consists of a double drum spudding unit with telescopic mast mounted on a specially built tractor, is being widely used for drilling in and cleaning out. This machine has a distinct advantage in that it is a complete unit and moves rapidly under its own power. Approximately 130 spudders of all types and sizes are operating in Illinois at the present time.



*About ready to make a connection on one double-drum manufactured rotary rig*

The activity of the spudders was concentrated for a time in the Centralia district, most of them being occupied with well completions consisting of drilling the sand, shooting and cleaning out. Where wells in low pressure sand formations are being drilled, spudders will probably continue to be widely used. Several difficulties hamper the drilling of the holes from the surface with spudding machines: the drift is extremely treacherous as the gravel found toward the bottom of the Pleistocene is liable to start running and below it there are several water sands that require casing. Most of the wells drilled in the Centralia district have required four strings of pipe although some have been completed with only three strings. The same is true of practically the entire basin area, caving formations and water being present throughout most of it. About 20 days in shallow fields and 30 days in the deeper ones are required to complete a well by this method, allowing four or five days for completion. There is, therefore, a substantial saving in time by drilling to the top of the pay with rotary and completing with spudders. Contract price for either job is approximately the same.

Meeting of the moving problem during the coming winter is attracting the attention of many contractors and oil companies, particularly those who operated in Illinois last year. A glance at the active operations curve shows a decided drop during the latter part of November and December and a continued lull through January and February. Activity picked up in March but it was the first of May before the drilling work started to increase steadily. For the most part only forced locations were drilled last winter but for the companies holding large spreads of acreage in productive territory this is little comfort as they will be forced to continue a drilling campaign which could probably be more economically conducted if postponed until spring.

The roads through both the Louden and Lake Centralia fields are already in bad condition despite the dry weather and will probably be a source of much inconvenience after the fall rains and a few


# CENTRALIA, YOUR OPPORTUNITY!

## OIL MEN HAVE FOUND IT SO....THIS SLOGAN OF CENTRALIA, CAPITAL OF ILLINOIS OIL

More Oilmen, and their families, have made their homes and headquarters in Centralia than in any other Illinois city.

Centralia's two fields, thus far, contain approximately one-half the wells in the New Illinois Play.

Centralia is in the heart of the 16 new Illinois fields thus far proved.

Drilling is in progress North, South, East and West of Centralia.

Large stocks of oil well supplies and equipment . . . well cementing . . . core analyses . . . well testing . . . oil field motor transportation . . . drilling contractors and equipment . . . welding, servicing, etc. . . . all are available in Centralia.

The Centralia urban area is the largest community in the Illinois territory under development.

Four railroads serve Centralia.

Concrete highways lead from Centralia to every part of Illinois' oil territory—proved and potential.

One of the finest water supply systems in Illinois. . . . Excellent electric, gas and telephone services at reasonable rates . . . A splendid grade school system in modern buildings . . . Fully accredited High School, among the largest and best equipped in the state . . . religious, cultural and recreational facilities, ample and varied . . . are among those things which make for happy living in Centralia.

OIL MEN AND OIL COMPANIES HAVE MADE CENTRALIA THE CAPITAL OF ILLINOIS OIL.

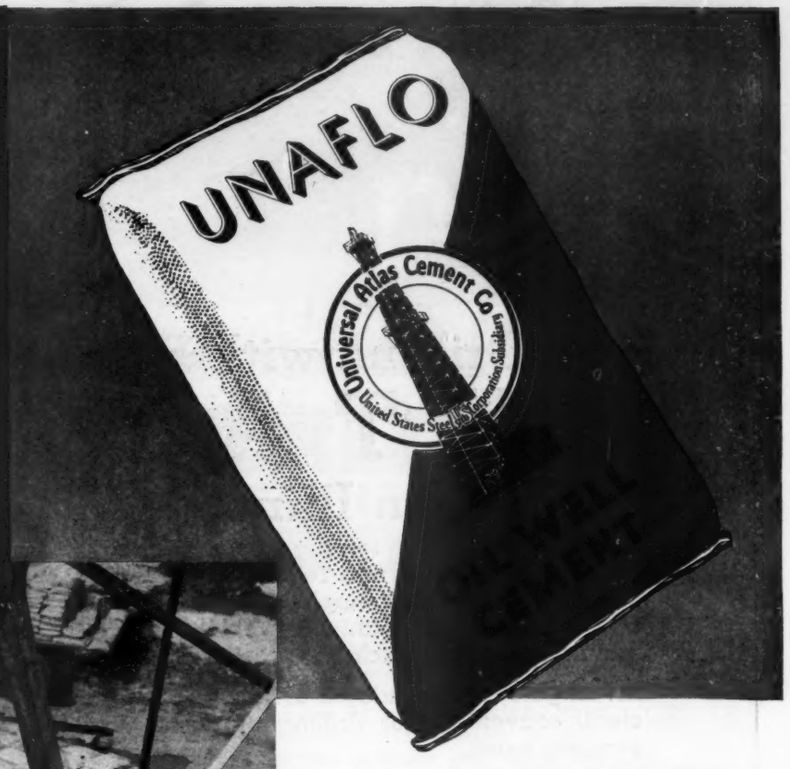
CENTRALIA EXPRESSES GRATITUDE AND PLEDGES TO PROVIDE THOSE THINGS NEEDED FOR CONTINUED EXPANSION.

**YOU WILL LIKE CENTRALIA FOR YOUR HOME AND HEADQUARTERS—CENTRALIA CHAMBER OF COMMERCE**

WRITE FOR THE NEW CENTRALIA BOOKLET—IT'S FREE!

# "YOU'VE GOT SOMETHING THERE!"

*–oil men tell us*



## *Here's a Cement that Permits the Operator to Control the Job*

● Can you start a cementing job, go ahead with it in the face of delays, without worrying about whether your cement will give you enough time?

The answer is yes, if you use Unaflo. With this easy-to-pump, retarded-set oil well cement, the operator controls the job instead of being controlled by the time element of the cement.

Recently, in the Oklahoma City Field it was decided to protect upper sands by applying a "squeeze" cementing job through perforations. The cement retainer was set at 4451′. The formation was broken down with water at 700 lb. per square inch.

4000 bags of Unaflo cement were mixed with one Halliburton motor driven truck.

The cement slurry averaged 16.04 lb. per gallon on 75 hydrometer determinations.

Due to waiting on water the time required was:

| | |
|---|---|
| Mix 4000 bags Unaflo | 5 hr. 15 min. |
| Displace cement from tubing | 20 min. |
| Release tubing and wash back cement | 18 min. |
| TOTAL | 5 hr. 53 min. |

Three weeks later same company completed a similar cementing job, using 4000 bags of Unaflo and one motor driven Halliburton truck in 5 hr. 3 min.

You'll like Unaflo. Try it on your next job. Universal Atlas Cement Co., United States Steel Corporation Subsidiary, Amicable Bldg., Waco, Texas; Kansas City; Tulsa; Oklahoma City.

### A Cement for Every Oil Company Use at Oil Well, Refinery and Filling Station

**Atlas portland cement** for *surface* work and for cementing *surface* casing. Unaflo cement is recommended for *deep* well work. Lumnite for cementing shallow wells where no sub-surface heat is encountered.

**Lumnite**

cuts down waiting time for your shallow wells. Lumnite for cementing wells where no sub-surface heat is found permits drilling-in within 24 hours.

Mudders in the Michigan field use Lumnite regularly for this purpose.

Lumnite concrete and mortar resist corrosion by sour crudes and sulphur-bearing refinery oils.

**Atlas White**

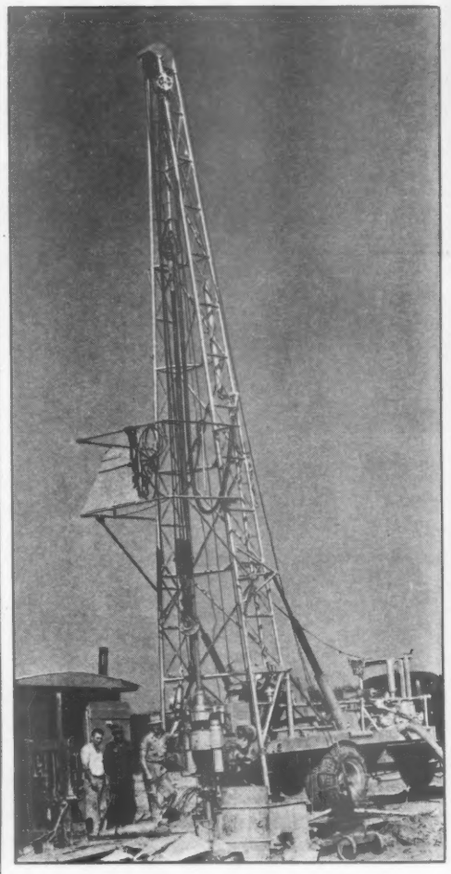
the cement that is pure *white* and non-staining. Exceeds specification requirements for portland cement strength. Ideal for ornamental work in connection with service station construction and repair.

U-18

# Universal Atlas
## CEMENTS

freezes. Most of the Lake Centralia district consists of low hills but the Louden area gets rather rough in some places and moving machinery to locations and the daily travel of the men may be very difficult. If the winter should be one of continued cold, the problem would be simplified as the boggy season would then be confined to thawing time.

Contractors and oil companies are not depending on whims of nature and much of the equipment is being designed for winter work. Mud pumps and hoisting units are being built so the skids can be covered on the bottom, thus making



*Failing core drill machine enlarged for drilling of producing wells in Lake Centralia field in Illinois*

a mud-boat which can be pulled into the location by tractor. The unitized mast rigs will have a decided advantage in that only one trip will be necessary to get the drilling machinery in place. The drill pipe can then be dragged in, with or without loading it on a boat. For locations near all-weather roads, board runways can be built.

### Drilling Conditions

While conditions in Illinois are quite different than in many other sections, good equipment, sensible drilling practices, and consideration of the geological conditions have been an aid to drilling contractors and drillers. There are practically no soft formations where the drilling of several hundred feet per tour is possible such as the thick shale beds of Oklahoma and the salt beds of Kansas and West Texas. Loose, unconsolidated formations are replaced by hard lime and sand formations which cannot be pumped out but which must be drilled. Only a few veins of coal which drill rapidly are present and these are not very thick, most of them being under 10 feet. Coal drills at a rate between soft sand and salt and the action of the bit while drilling the coal is about half way between the same two formations. Due to the low density of the bituminous coal,

They're Drilling with BOND

BUTANE

in Illinois

Illinois operators are relying on B. E. Bond & Company to supply them with High Test Butane for winter drilling. We have a constant supply of uniform quality Butane from Major oil companies in Oklahoma and Kansas; maintain a fleet of trucks for prompt shipment to Illinois.

Investigate the advantages of Butane. Inexpensive, efficient, convenient for drilling purposes where a fuel problem exists.

HIGH-TEST BUTANE FOR WINTER USE
"BUTANE DELIVERED ANYWHERE"

Write for full particulars.

B. E. BOND & COMPANY

P. O. Box 588, West Tulsa, Okla. TULSA, OKLAHOMA Phone 5-0613

BULK STATIONS: TEXACO PLANT, MT. VERNON, ILLINOIS; BOND PLANT, ODEN, ILLINOIS; BOND PLANT, PRATT, KANSAS.

The Marsh line includes gauges especially designed for: blenders, boilers, burners, capping, Christmas trees, columns, heaters, hydrogen units, instrument panels, pumps, Reid vapor bombs, scrubbers, separators, slush pumps, stills, towers, and other applications in all branches of the petroleum industry.

BUILT — as only MARSH experience could build it

IN more than a half-century of gauge making many things are learned that are not "in the book"—ways of making gauges that are both rugged *and* accurate—ways of making gauges that will stay accurate under conditions that ordinary gauges could not survive.

The Marsh Refinery Gauge illustrated is typical of the advanced line of vapor-proof, moisture-proof instruments built to meet the most arduous conditions that the petroleum industry imposes. It has the exclusive Marsh "Recalibrator", the new Marsh "Master-gauge" movement, and many other distinguishing features. See your supply house for information or write for complete description.

JAS. P. MARSH CORPORATION
2065 SOUTHPORT AVENUE, CHICAGO.

MARSH GAUGES

return of cuttings is quite rapid and reveals practically nothing but this formation in the sample; at the same time the drilling fluid develops a black, frothy scum.

Some operators use the coal beds for estimating the thickness of the Pennsylvanian and many subsurface maps have been contoured on a particular coal. Recently the Glen Dean lime near the top of the Mississippian has been chosen as the most reliable marker as it is practically continuous throughout the basin and provides a sound basis for estimating the depths of the older formations.

While there is no relation between the hardness of the upper formations and the pay horizons, the younger formations also vary widely in hardness and abrasiveness in different localities and often from well to well in the same field. Many of the wells in the Ohio-Pure field north of the town of Noble found a very hard abrasive sand around 1,400 feet which required two and three bits to cut as little as 30 feet. To the south and on the west side of the town of Noble, the Pottsville sand at the base of the Pennsylvanian frequently required as many as three bits to drill 15 feet. When the bits were pulled from the hole they were found to have all the teeth worn away and in some cases cones were lost in the hole due to the bit being used a little too long. The Palestine and Tar Springs sands drill reasonably fast in most cases but in some localities they harden enough to wear bits badly. The wide range of hardness in various localities is reflected in the number of bits required on different holes, the well using the fewest bits requiring only 40 per cent of that using the most bits in the 3,000-foot McClosky fields. In the shallower fields the range is not so great, the well using the least bits in each field averaging about 60 per cent of the one requiring the most bits in the same area.

In part, the number of bits required is dependent on the skill and knowledge of the drillers and the rigs and their manner of operation. However, when the maximum footage is gained from each bit as is evidenced by the condition of the bits when pulled, and when a particular well requires from 5 to 10 more bits than other wells in the same field, it is evident that the variation in hardness plays an important part. In the Fairfield area in Wayne County, where there is considerable activity at the present time, several wells have encountered extremely hard formations where adjoining wells found the formations comparatively soft.

There has been a steady down trend in the number of bits required per well during the past year due to the knowledge gained by drillers. Most thick lime formations which drill slowly are now known and the drillers' judgment of the condition of the bit in the hole is fortified by this knowledge. The maximum footage is being gained from most of the bits and fewer green bits are being pulled.

Drilling below the McClosky through the Ste. Genevieve, the St. Louis, Salem and Osage formations is a tedious task as these stratas require bits designed for hard formation cutting and from 8 to 15 feet per tour is the average cutting speed. The New Albany shale provides practically the only break in the slow drilling between the Ste. Genevieve and the Ordovician.

### Well Procedure

Surface pipe has been omitted on many wells, particularly in the Centralia and Louden fields where the Pleistocene formations will stand up. On many wells, however, it has been necessary to case off the upper formations as gravel fell in around the pipe while making a connection and stuck the drill stem, requiring a wash-over job to get it free. In the deeper fields, 120 to 200 feet of surface pipe is set and cemented, with the surface hole being drilled with 9.5 mud. When nearing the completion depths, the mud is allowed to thicken to about 10.2 pounds per gallon with 40 viscosity.

The two main obstacles encountered by drillers

SAVES TIME!
SAVES LABOR!
SAVES MONEY!
A BEAR for WEAR
GRIZZLY
ROTARY BRAKE BLOCK
BAND EXCHANGE
No excuse now for causing yourself the troubles and worries involved in relining rotary brakes! The Grizzly Brake Block Band Exchange is the economical answer to all brake relining problems. It enables you to exchange your old, worn-out bands for brand new steel bands, made to exact specifications for your particular draw works, and factory-lined with genuine Grizzly full-moulded Rotary Brake Blocks of the correct thickness, width, length and radius. Operators everywhere are using this quick, easy, money-saving plan. It ends all worry and waste . . . assures you of safer brakes, more ton miles of service and greater dependability . . . yet it costs no more than ordinary lining and installation. Ask your nearest supply house for further details.
E. M. SMITH COMPANY
600-650 South Clarence St., Los Angeles, California, U.S.A.
Complete stocks Maintained in Our Warehouses at: 1121 Rothwell St., Section 16, Houston, Texas. 1008 S. E. 29th St., Oklahoma City, Okla. Export Office: Continental Emsco Co., 30 Rockefeller Plaza, New York City. Distributed by Leading Supply Companies.

Tel.: Centralia 1202 — Mt. Vernon 1242

**The Ann Bell Oil Company**

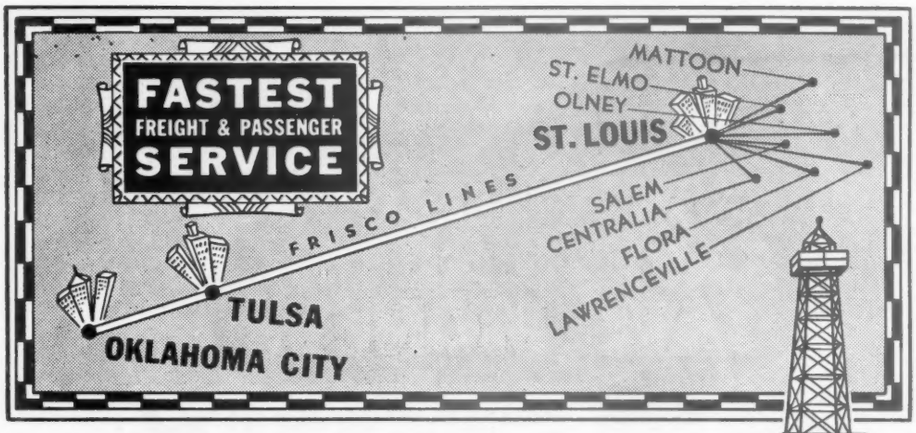
Producers — Drilling Contractors

SMITH BUILDING

CENTRALIA, ILLINOIS

We Own First Class Drilling Equipment and Solicit Your Contracts.

J. W. CAVANAUGH — KEITH A. SPITZNAGEL, Geologist.




# FRISCO FIRST

## BETWEEN OKLAHOMA AND THE ILLINOIS BASIN

Experienced travelers in the oil industry always specify Frisco when "commuting" between Oklahoma and St. Louis—the gateway to the Illinois oil districts.

Experienced shippers likewise insist on Frisco Faster Freight! The most modern equipment and trains operating on passenger-train schedules insure dependability—always.

When traveling or shipping between Oklahoma and Illinois—think of Frisco First.

★

| THE METEOR | | THE WILL ROGERS | |
|---|---|---|---|
| 4:55 PM Lv. | OKLA. CITY Ar. 8:20 AM | 11:20 AM Lv. | OKLA. CITY Ar. 1:10 PM |
| 7:50 PM Lv. | TULSA Ar. 5:20 AM | 2:00 PM Lv. | TULSA Ar. 10:10 AM |
| 8:10 AM Ar. | ST. LOUIS Lv. 6:30 PM | 12:15 AM Ar. | ST. LOUIS Lv. 11:53 PM |

*Convenient connections in the St. Louis Union Station with trains to and from the Illinois Oil Fields.*

St. Louis-Tulsa sleeping car may be occupied at Tulsa until 8:00 A.M.

Through sleeping car to Chicago, arriving Chicago 7:45 A.M.

FRISCO LINES
ST. LOUIS-SAN FRANCISCO RY.

FFF
FRISCO FASTER FREIGHT



## ILLINOIS WELL LOG BUREAU

1. Supplying to the oil industry a WEEKLY LOG SERVICE of currently completed wells in Illinois.
2. Supplying BACK FILES of Illinois well logs.
3. Supplying other valuable GEOLOGICAL STUDIES of wells in Illinois.

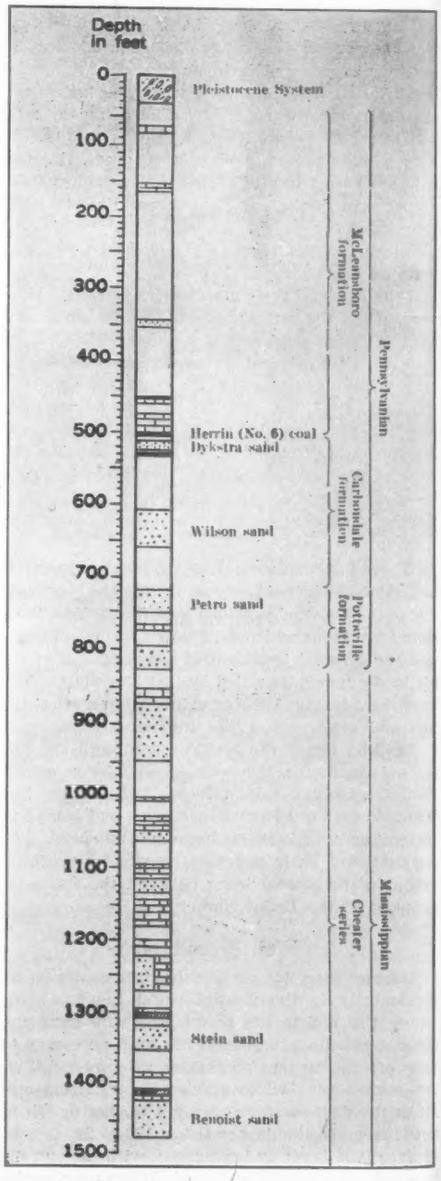
All at nominal costs.

For information write, phone, or wire:

**THE ILLINOIS WELL LOG BUREAU**
**SALEM, ILLINOIS**


are the tendency to lose circulation in the top of the Cypress (Weiler or Stein) and the sticking of the drill pipe in the Cypress, Aux Vases, Bethel and Ste. Genevieve. Several wells required a large amount of artificial mud and fibered material before successfully sealing of the Cypress sand. Truck loads of cotton seed hulls were hauled in from Kentucky and Missouri for this work.

Sticking of the drill pipe seems to occur most frequently while coming out of the hole after circulating preparatory to coring. In some cases a possible contributing factor has been improperly conditioned mud or a faulty pump that was not delivering sufficient fluid to keep the hole clear. Several strings have been stuck when the mud and pump were in excellent condition so the blame cannot rest entirely with the surface equipment or the judgment of the drillers. One of the unusual factors is that only a very light pull is necessary to stick the pipe when there is only a small mud ball on the bit, from 3 to 4 tons being sufficient in most cases. Acidizing when stuck in lime has been successful in freeing several strings but others required twisting off and washing over. Freeing of pipe stuck in sand is generally helped by spotting of oil around the bit but most of these have been loosened by continued driving, the kelly joint being




*Generalized columnar section of Centralia-Sandoval area as given in Bulletin 10 of the Illinois Geologic Survey*

# New FIELDS to CONQUER

## with "HERCULES"* (Red Strand) WIRE ROPE

**A YEAR AGO...** ***Illinois took the limelight in the oil industry... adding another dramatic opportunity for "Hercules" (Red Strand) Wire Rope to prove its superior merit . . . to further establish its supremacy that has been long recognized by the oil industry***

***From all over the country came riggers and drillers into this strange new Illinois field. Yet, in the midst of these unfamiliar surroundings, the ever-familiar "Hercules" (Red Strand) Wire Rope was to be seen. As operations have grown during the past year, so, too, have grown—even at a greater pace—the use and favor of "Hercules" (Red Strand)—the mark of the Wire Rope that has again proved it can "take it" in the most gruelling tests of oil well drilling.***

***Since the first wire drilling line was used... A Leschen Product... every succeeding oil field discovered in this country has meant "New Fields to Conquer" for Leschen Wire Rope.***

ILLINOIS

*Reg. U. S. Pat. Off.

AMERICAN SUPPLY CO., Kilgore, Tex.
CASEY & NEWTON
901 Century Building, Pittsburgh, Pa.
GUSTIN-BACON MANUFACTURING CO.
Kansas City . . Fort Worth . . Houston . . Odessa . . Tulsa
F. HAMILTON CO., Inc., Bradford, Pa.
HERCULES SUPPLY COMPANY
Fort Worth . . Corpus Christi . . Houston . . Kilgore
HILLMAN-KELLEY, Inc.
2441 Hunter Street, Los Angeles, Calif.
KIMBELL-BOSTIC SUPPLY CO., Inc.
Wichita Falls, Texas
THE B. LEVY ESTATE, Titusville, Pa.
MURRAY-BROOKS HARDWARE CO., Ltd.
Lake Charles, La.
Houma . . Jennings . . New Iberia . . Ville Platte
NORVELL-WILDER SUPPLY COMPANY
Beaumont . . Corpus Christi . . Forth Worth . . Houston
Monahans, Texas . . Lake Charles, La.
PARKERSBURG SUPPLY COMPANY
Parkersburg, W. Va.
UNION PIPE AND SUPPLY CO., Inc.
Owensboro, Ky.
UNITED PIPE AND SUPPLY CORP.
Charleston, W. Va.
UNITED SUPPLY & MANUFACTURING CO.
Tulsa . . Oklahoma City . . Stonewall
Chase, Kan. . . Hutchison, Kan. . . Houston, Tex.
Odessa, Tex. . . Pampa, Tex. . . Eunice, N. M.
WESTERN MACHINERY CO.
Centralia, Ill. . . Clay City, Ill.

Made Only By **A. LESCHEN & SONS ROPE CO.** Established 1857

5909 Kennerly Avenue St. Louis, Missouri

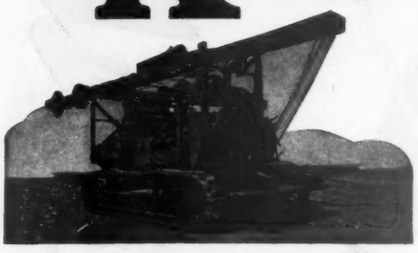
NEW YORK • CHICAGO • DENVER • SAN FRANCISCO • PORTLAND • SEATTLE

EXPORT DISTRIBUTORS: CONTINENTAL EMSCO COMPANY, Inc., 30 Rockefeller Plaza, New York, N. Y. . . . *Branches:* Buenos Aires . . . London . . . Ploesti

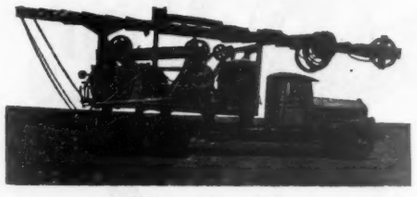
KEYSTONE KEYSTONE KEYSTONE KEYSTONE

# "Keystone"

## Model 80 Series All-Steel Spudders



*Truck, Wheel or Crawler Mountings.*



*"Time Tested . . . Field Proven."*

See them operating in Illinois Field, most every oil field in the U. S., and many abroad—quickly reaching "Pay".

**Speed . . .**

Seven speed transmission makes for—faster drilling—faster bailing out—faster pipe handling. Hours saved, days gained—check their records.

**Mobility . . .**

Special engineering features assure easy moving in and out. Field men appreciate the mobility achieved in Keystone machines.

**Reliability . . .**

Extra sturdiness in construction throughout, tends to eliminate vibration and assures continued high speed operation throughout job. Write for complete description and information. Keystone has superior features to meet conditions in *your* location.

—AND many drillers prefer to use all KEYSTONE Superior made tools!

(SEE KEYSTONE REPRESENTATIVE, PITTINGER HOTEL, CENTRALIA, ILL.)

## Keystone Driller Co.

BEAVER FALLS, PA. JOPLIN, MO. ARLINGTON, N. J. WAUKEGAN, ILL.

KEYSTONE KEYSTONE KEYSTONE KEYSTONE



## We Welcome the Oil Industry

# TO FLORA

**THE CENTER OF THE ILLINOIS OIL FIELD**

**(Look at the Map)**

**Excellent rail and highway transportation to all parts of the Basin**

**FLORA CHAMBER OF COMMERCE**

R. S. JONES, Sec. Phone 77, FLORA, ILL. CLARENCE T. SMITH, Pres.


used for a driver by most contractors. Drillers are avoiding this trouble by being particularly careful when coming out of the hole and stopping at the first sign of the pipe sticking. The drill pipe can then be worked through the tight place.

For the most part, drilling operations have been carried on with a high degree of success in Illinois particularly in view of the haste with which the wells are drilled. Due to the shut-down in other fields, plenty of qualified drillers are available

*Power-driven pump typical of Illinois fields. High-pressure hose used for mud line facilitates rigging up*

and there have been only a few occasions when the demand for men exceeded the supply. Most of the rigs shipped in from other states were accompanied by the men while those purchased in Illinois were manned by crews who had come to Illinois in search of work. Activity will probably decrease during the winter months but due to the vast expanse of both the Lake Centralia and the Louden areas and the large number of forced offsets, there will undoubtedly be much more work than during last year's cold months.

One of the marked improvements from the viewpoint of the men operating tools in Illinois and Kentucky is the increase of supply stores and stocks. At the start of the Illinois play only a few supply companies were doing business in the state and these were selling cable tools and light production equipment. Operation of rotary rigs was carried on under considerable difficulty due to lack of supplies. This has been corrected and supply companies and service companies are now adequately serving the area. An adequate supply of butane for fuel on drilling rigs was recently made available with the establishment of a stock in Centralia, Ill.

*In the Fairfield pool in Wayne county, a tank salesman and farm boss take time out for a picture in front of a recently installed battery of 210-bbl. tanks*

# The Perfect Hookup for Serving the ILLINOIS BASIN

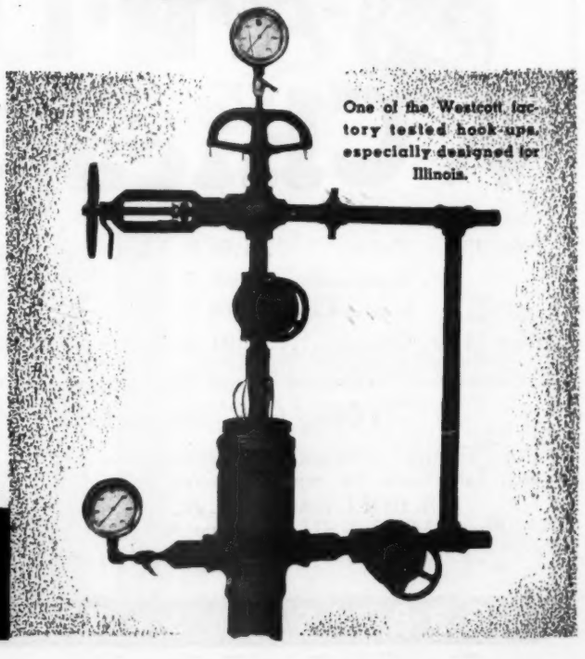
Type H semi-steel flow line valve provides a safety factor equal to a steel valve but at lower cost—ideal for Illinois

Westcott's standard gate valve with a reputation earned in many fields.

The Westcott Swing Check valve provides dependable service under severe service conditions.

An immense back-stock at Westcott's East St. Louis plant in addition to Continental's well-stocked field stores provides unequalled service to the Illinois Basin.

As manufacturers of valves exclusively for the oil industry, Westcott knows the importance of prompt service. To be served more promptly than ever before, specify "Westcott" on your next requisition.



One of the Westcott factory tested hook-ups, especially designed for Illinois.

**THE CONTINENTAL SUPPLY COMPANY**

General Offices: DALLAS, TEXAS

Export Office: CONTINENTAL EMSCO CO., Inc.
30 Rockefeller Plaza New York City, N. Y.

Representatives:
LONDON MARACAIBO BUENOS AIRES TRINIDAD
TAMPICO

*"Serving the Oil and Gas Industries"*

# CONTINENTAL

## BIRK CITY DISCOVERY

*(Continued from Page 94)*

wells having certain first-day productions is estimated as follows:

| First day's production | First 30 days | | First year | |
|---|---|---|---|---|
| | Total | Dly. aver. | Total | Dly. aver. |
| 1,000 | 18,326 | 610 | 38,720 | 106 |
| 750 | 14,533 | 484 | 33,320 | 91 |
| 500 | 10,515 | 351 | 27,380 | 75 |
| 400 | 8,582 | 286 | 23,380 | 65 |
| 300 | 6,687 | 223 | 19,540 | 54 |
| 200 | 4,579 | 152 | 15,500 | 42 |
| 100 | 2,515 | 84 | 9,515 | 26 |

The structure and stratigraphy of the Birk City field, as discussed in a paper by Daniel J. Jones, state geologist, and Louise Barton Freeman, assistant geologist:

At the present stage of development, the structure is a series of roughly parallel, southwestwardly plunging, anticlinal folds. The rate of dip is approximately 50 feet per mile. This type of deformation is common in the Western Kentucky coal basin.

Lack of surface and subsurface control did not permit accurate structural determinations in the area. A northeast-southwest trending fault, known as the Curdsville, with downthrow on the south and east has been recognized by geologists for many years. It is a part of the Rough Creek fault system, which deformation occurred some time after the close of the Pennsylvanian.

A study of producing wells and dry holes in the Birk City area indicates that the accumulation of oil is related to the anticlinal folding. The production from the McClosky horizon is due to a combination of two factors principally—position on the structure and the development of a zone of large, loosely cemented oolites. Some of the tests on the downdip edges of the productive area have produced water, indicating a water drive. These factors seem to be the important ones controlling accumulation in this field.

The Chester section apparently is complete in the Birk City area. The intervals from the top of the Chester to the base of the Golconda check very well with those from wells in McLean County, and the section above the Tar Springs is perhaps more calcareous than similar sections nearer the outcrop to the east. There seems to be a thickening, especially of the clastic intervals, from the base of the Golconda to the top of the Ste. Genevieve. However, studies to date indicate that these lower sands, with the exception of the Cypress, thin to shales and finally to limestones as outcrop is approached on the southeastern edge of the basin. These sandier phases of the lower intervals in Henderson County offer further evidence for the conception of continuous sedimentation during the Chester times.

### Other Formations

In the Birk City district, the Barlow sand interval is usually more sandy than in other sections of Western Kentucky and in several wells it carries water. The Bethel sand is thicker and contains less shale than to the south.

The Cunningham interval, or Aux Vases sandstone, has definitely thickened with more sand. The Miller & Shiarella No. 1 Rash, north of the Birk City pool in Henderson County, shows about 65 feet of clean, lightly cemented sand, which is an extraordinary thickness for the interval even in this area. Whether this thickening of the Aux Vases sand is accompanied by a thinning of the Ste. Genevieve cannot be illustrated with available information. An examination of samples from No. 1 Rash compared with samples from another key well to the north of the producing area (Petroleum Exploration Co. No. 1 Southern Trust) shows that the dark green shale was found at practically the same distance from the base of the Cunningham in both wells. This dark gray and green shale in all samples studied so far appears directly above the McClosky producing horizon.

The McClosky is found in this district about 100 feet below the base of the Cunningham. It is a zone of large, loosely cemented oolites, many of which are irregular in form due to the fact that small fossils form the nuclei. In many cases the fossils break free from the enclosing calcium carbonate and can be identified as the same forms making up the dwarfed fauna of the Salem. The same peculiar kind of oolites with the same fauna has been recognized also in the Golconda in some of the wells in this area. Two wells in McLean County showed the McClosky at 210 feet below the base of the Cunningham and one of these showed a similar zone about 50 feet below the first. Evidently the position of the McClosky within the Ste. Genevieve varies from place to place.

The geologists suggest in conclusion that if, in the future, the McClosky is not found at the depth expected it might be wise to drill to the base of the Ste. Genevieve if necessary to be certain of its absence.

Other McClosky lime pools probably will be uncovered in the western Kentucky basin; certainly, the large lease blocks assembled by major oil companies and independents will be tested and many wildcat wells will be drilled within the next few years. Just recently McClosky production was found about 1½ miles west of Utica in Daviess County, when a 7-year-old well that was supposed to be dry was cleaned out, acidized and pumped at the rate of 240 bbls. of oil daily. Oil men believe that similar strikes in the deeper zones will be made elsewhere in the basin.

Already, the oil industry has contributed much wealth to Kentucky. A recent statement of W. J. Hinchey, president of the Kentucky Natural Gas Co., was to the effect that in the last 10 years the oil and gas produced and marketed from the area around Owensboro had brought $40,000,000 to producers and royalty owners.

*Wisconsin Air Cooled Engine driving pumping unit on well located at Patoka, Illinois.*

**WISCONSIN AIR COOLED ENGINES**

have definitely proved their dependability for pumping applications as evidenced by the hundreds of units now in service in Illinois fields.

We invite your investigation of the following advantages offered by Wisconsin Air Cooled Engines.

AIR-COOLED — WEATHER PROOF — LIGHT WEIGHT — LOW INITIAL COST — MINIMUM CARE — FEWER PARTS — DEPENDABILITY — ECONOMICAL OPERATION — 1 TO 30 H.P.

DEALERS IN EVERY IMPORTANT FIELD.

**HARLEY SALES COMPANY**

*Oil Field Distributors for Wisconsin Motor Corp.*

510 Atlas Building TULSA, OKLAHOMA P. O. Box 1926

Santa Fe -A·P·I Streamlined SPECIAL TRAIN to Chicago and return

Nov. 13 Lv. Tulsa..... 4:00 P. M.
Lv. Bartlesville .. 5:00 P. M.
Lv. Kansas City ..10:00 P. M.
Nov. 14 Ar. Chicago..... 8:00 A. M.

RETURN SCHEDULE
Nov. 18 Lv. Chicago..... 5:00 P. M.
Nov. 19 Ar. Kansas City.. 2:30 A. M.
Ar. Bartlesville .. 7:25 A. M.
Ar. Tulsa ..... 8:30 A. M.

Modern Type Streamlined Pullmans and Dining Car—famous Fred Harvey meals.

For further information, reservations, etc., call Santa Fe representatives.
J. S. ROLLMAN, C. P. A.
Phone 3-0173 — 417 S. Boston Ave., Tulsa, Okla.

ROUND TRIP FIRST-CLASS FARE from Tulsa LIMIT 30 days $31.80

1938 IS A SANTA FE YEAR

# REFINING ILLINOIS CRUDE

*(Continued from Page 88)*

(L-3 method) motor fuel, and in addition 29.8 per cent gas oil and 3.9 per cent No. 2 furnace distillate is produced. Table 7 gives detailed results.

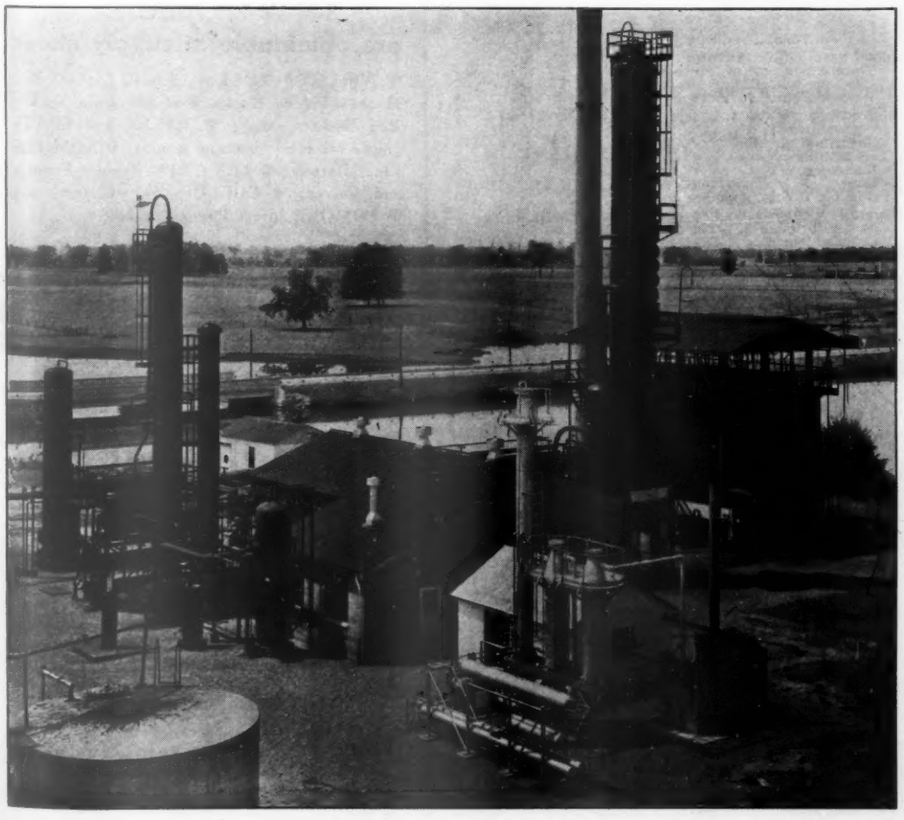
It will be noted that the gas oil fraction has a low cold test and that its other properties are satisfactory, particularly from the standpoint of use as Diesel fuel. The low sulfur content of the reduced crude cracking stock will result in a gasoline with well below 0.1 per cent sulfur. This gasoline may be made marketable simply by sweetening and adding an antioxidant and dye. Any of the conventional methods of treatment

**TABLE 5—PROPERTIES OF CLAY CITY, ILL., LIGHT CRUDE OIL**

| | |
|---|---|
| Gravity, °A.P.I. | 39.5 |
| Specific gravity at 60° F. | 0.8280 |
| B.S.&W., per cent | Trace |
| Sulfur, weight per cent | 0.15 |
| Salt, as NaCl, lbs./1,000 bbls. | Trace |
| **100 cc. Engler Distillation** | |
| I.B.P., °F. | 116 |
| 5 per cent | 184 |
| 10 | 218 |
| 20 | 284 |
| 30 | 356 |
| 40 | 441 |
| 50 | 540 |
| 60 | 629 |
| 70 | 695 |
| 80 | 726 |
| 90 | 749 |
| E.P., °F. | 752 |
| Per cent over | 96.5 |
| Per cent coke by weight | 2.4 |

**TABLE 6—LABORATORY BREAKUP, CLAY CITY, ILL., CRUDE OIL, 39.5° A.P.I. GRAVITY**

| Fraction: | 400° F. E.P. gasoline | Topped crude after removal of 400° F. E.P. gasoline | Gas oil | Reduced crude |
|---|---|---|---|---|
| Yield, volume per cent of crude | 36.5 | 62.7 | 29.8 | 32.9 |
| Properties of fractions: | | | | |
| Gravity, °A.P.I. | 61.7 | 27.9 | 36.7 | 21.1 |
| Specific gravity at 60° F. | 0.7324 | 0.8877 | 0.8413 | 0.9273 |
| Flash, Pensky-Martens, °F. | | 215 | 185 | 440 |
| Sulfur, weight per cent | 0.03 | 0.18 | 0.09 | 0.25 |
| B.S.&W., per cent | | Trace | | Trace |
| Cold test, °F. | | 40 | +5 | |
| Viscosities, seconds: | | | | |
| Universal at 100° F. | | 132 | 37.4 | |
| Universal at 122° F. | | 83 | | |
| Universal at 210° F. | | | | 125 |
| Furol at 122° F. | | | | 126 |
| Viscosity, Centistokes, at 100° F. | | | 3.243 | |
| Aniline point, °F. | | | 160.2 | |
| Diesel index | | | 58.7 | |
| Viscosity-gravity number | | | 0.835 | |
| Boiling point-gravity number | | | 181.3 | |
| Cetane No., Delay Method (calculated) | | | 53 | |
| Octane No., A.S.T.M. Motor Method | 53 | | | |
| Characterization factor | 12.15 | 11.95 | 11.75 | 12.0 |
| **100 cc. Distillation** | | | | |
| I.B.P., °F. | 105 | 433 | 414 | 644 |
| 5 per cent | 138 | 464 | 436 | 690 |
| 10 | 155 | 489 | 448 | 708 |
| 20 | 184 | 534 | 468 | 722 |
| 30 | 210 | 587 | 489 | 727 |
| 40 | 231 | 642 | 505 | 730 |
| 50 | 250 | 684 | 525 | 736 |
| 60 | 270 | 702 | 544 | 743 |
| 70 | 293 | 716 | 570 | 750 |
| 80 | 317 | 731 | 592 | 756 |
| 90 | 351 | 748 | 622 | |
| E.P., °F. | 401 | 756 | 670 | 758 |
| Per cent recovery | 97.0 | 96.0 | 99.0 | 95.0 |
| Per cent coke by weight | | 3.7 | | 5.5 |
| Per cent residue | 1.0 | | 1.0 | |
| Per cent loss | 2.0 | | | |
| Per cent at 572° F. | | 27.5 | 71.0 | |



*1,200-bbl. U.O.P. reforming unit and 50-bbl. catalytic polymerization unit*


LEARN

WHY PAGE P-12 GALVANIZING

*means longer fence life—at no extra cost*

PAGE FENCE

PAGE P-12 Galvanizing is guaranteed to withstand 12 one-minute Preece Test dips—standard tests of corrosion resistance and galvanizing uniformity. This is *twice* the number of test dips most former fence fabrics withstand. PAGE P-12 double-thick Galvanizing applies not only to fence fabric, but to fittings, top rail and wing-channel line posts as well—a PAGE feature assuring longer fence life *at no extra cost.*

**5 Superior Fence Metals Meet All Atmospheric Conditions**

To meet these various destructive air conditions PAGE FENCE is supplied in 5 master metals—Page P-12 Copper-bearing Steel, Page-Armco Ingot Iron, Page-Alcoa Aluminum, Page-Allegheny Stainless Steel and Page genuine Wrought Iron picket fence. The metal best suited to your locality and purpose is impartially recommended, by PAGE fence experts.

**FENCE FACTS FREE**

Mail the coupon. It will bring you illustrated booklet "Fence Facts" and refer you to nearest of 92 completely responsible Page Fence Distributors located throughout the United States for free consultation, expert fencing service and erection by trained crew.

*Page Fence is a product of the Page Steel & Wire Division of American Chain & Cable Company, Inc.*

fence facts

PAGE FENCE ASSOCIATION

Dept. OG10, Bridgeport, Connecticut

Please mail me, without obligation, new Free Booklet, "Fence Facts," and name of nearest associated Page Fence Distributor.

*Name*.....

*Address*.....

*City*.....

AMERICA'S FIRST WIRE FENCE • SINCE 1883

EAST

In wells throughout the Pennsylvania region . . .

WEST

and in the deeper wells of Mid-Continent and Western Fields . . .

*and . . .*

EVERYWHERE

. . . Valve Cups by Darling are *standard*. Darling introduced the original composition valve cup over 30 years ago. No matter how tough the service, you can depend on Darling Valve Cups for economical operation, year after year.

DARCOVA
(Orange Label) the standard valve cup under severe service at all depths.

DARVAL
(Blue Label) for service in wells to approximately 2,000 feet in depth.

DARFLEX
(Green Label) the popular favorite for wells to 800 feet in depth.

Manufactured Only By
DARLING VALVE & MFG. CO.
Williamsport, Pa.

Memo: Contact Atlas-Lansing for Drop Forgings that resist Corrosion and Heat.

ATLAS
DROP FORGINGS
All shapes and sizes to 500 lbs.
ATLAS DROP FORGE COMPANY • LANSING, MICHIGAN

such as those employing clay or acid may be used to produce a water-white product.

Tables 8 and 9 record the results of analyses of crude from the Weiler sand in Clay County. The yield of 50 octane number gasoline was 30.3 per cent and of 420° F. endpoint gasoline was 35.8 per cent. In addition 9.0 per cent kerosene, 9.0 per cent gas oil and 25.5 per cent wax distillate were removed leaving a 13.3° A.P.I. gravity residue. Of particular interest is the sulfur distribution in this crude, illustrated in Table 10. These results, typical of those on other Illinois crudes show that the bulk of the sulfur is concentrated in the very high boiling fractions. In this instance 0.116 per cent or 89 per cent of the total (0.13 per cent) sulfur is found in the crude residue. Hydrogen sulfide is notably absent from the light distillate, and the mercaptan content is low, indicating a product nearly sweet as distilled.

### Clinton County Crudes

The Centralia field in Clinton County is among the newer important developments. A 39.2° A.P.I. sample from this field, analyzed as shown in Tables 11 and 12, appears to differ little from the Clay City crude of similar gravity. The reduced crude, after removal of 37.8 per cent of 53 octane number gasoline and 9.8 per cent kerosene has an A.P.I. gravity of 24.8. By cracking this reduced crude, reforming the straightrun gasoline and polymerizing the cracked gases, a total yield of 60.7 per cent of 71 and 73 octane (L-3 method) gasoline is obtainable with 9.8 per cent kerosene and 20.1 No. 6 fuel oil. Table 13 shows complete results. It may be noted here that the residual

**TABLE 7—ESTIMATED SKIMMING AND CRACKING YIELDS FROM 39.5° A.P.I. GRAVITY, CLAY CITY, ILL., CRUDE**

| | |
|---|---|
| Fractionation yields, vol. per cent of crude: | |
| Gasoline (53 Oct. No., M.M.) | 36.5 |
| Gas oil (36.7° A.P.I.) | 29.8 |
| Reduced crude | 32.9 |
| Recovery | 99.2 |
| Loss | 0.8 |
| Cracking yields, vol. per cent of reduced crude: | |
| Cracked gasoline (66-68 Oct. No., M.M.) | 43 |
| Cracked No. 2 fuel oil | 12 |
| Residuum (No. 6 fuel oil) | 42 |
| Recovery | 97 |
| Loss | 3 |
| Gas, cu. ft./bbl. reduced crude | 420 |
| Total gasoline by skimming and cracking: | |
| Volume per cent of crude oil | 50.7 |
| Octane No., M.M. | 57 |
| Octane No., L-3 method | 58 |
| Reforming yields, vol. per cent of straightrun gasoline: | |
| Reformed gasoline (71-72 Oct. No., M.M.) | 76 |
| Reforming residue (No. 6 fuel oil) | 2 |
| Recovery | 78 |
| Loss | 22 |
| Gas, cu. ft./bbl. gasoline charge | 710 |
| Overall yields, including reforming and polymerization, vol. per cent of crude oil: | |
| Cracked gasoline | 14.2 |
| Reformed gasoline | 27.7 |
| Polymer gasoline | 2.6 |
| Total gasoline | 44.5 |
| Gas oil | 29.8 |
| Cracked No. 2 furnace oil | 3.9 |
| Total No. 6 fuel oil | 14.5 |
| Recovery | 92.7 |
| Loss | 7.3 |
| Residual gas, cu. ft./bbl. crude | 340 |
| Octane rating of total gasoline: | |
| Motor method | 70-72 |
| L-3 method | 72-74 |

**TABLE 8—PROPERTIES OF CLAY COUNTY, WEILER SAND, CRUDE OIL**

| | |
|---|---|
| Gravity, °A.P.I. | 37.0 |
| Specific gravity at 60° F. | 0.8398 |
| Cold test, °F. | Below —35 |
| B.S.&W., per cent | 1.5 |
| Viscosity, S.U. at 100° F., seconds | 42 |
| Sulfur, weight per cent | 0.13 |
| Water, per cent | 1 5 |

**2,000 cc. Column Distillation**

| | |
|---|---|
| I.B.P. °F | Below 135 |
| 5 per cent | 150 |
| 10 | 177 |
| 20 | 278 |
| 30 | 390 |
| 40 | 465 |
| 50 | 563 |
| 60 | 652 |
| 70 | 770 |
| 80 | |
| 90 | |
| E.B.P., °F. | |
| Per cent over | 80.8 |
| Per cent bottoms | 18.5 |
| Per cent coke by weight | |
| Per cent loss | 0.7 |

Patent No. 2,027,783

B-M-W
Admore
Insert Pump Anchor

The
FIRST CHOICE
of Those Best Qualified to Choose Oil Well Equipment

**PAYS** for itself quickly.

**SAVES** expense of pulling tubing.

**SAVES** on sucker rods and other equipment where fluid level is high and well can be pumped above bottom.

**ELIMINATES** necessity of other seating means such as working barrels, seating nipples, or mechanical shoes.

**SEATS** your insert pump by packing off and holding down directly in the tubing itself.

**SCREWS** directly onto the pump and replaces the conventional cup or mechanical hold-down. The pump is run in the usual way with no special care required.

*Complete data on request. See our advertisement in the "Composite Catalog."*

B-M-W PRODUCTS
are obtainable at supply stores

● NEILSON TOOLS (Safety Sucker Rod Hooks; Tubing Hooks, Rod Elevators, Sucker Rod Sockets, etc.); ● BALLS and SEATS (made for every pumping service; ● ADMORE Liner Barrels; ● TEX TYPE Plunger Fittings and Valves; ● COLLINS Belt Clamps, and ● ADMORE Insert Pump Anchors.

BRADFORD MOTOR WORKS INC
OIL WELL SUPPLIES
BRADFORD, PA. — TULSA, OKLA.

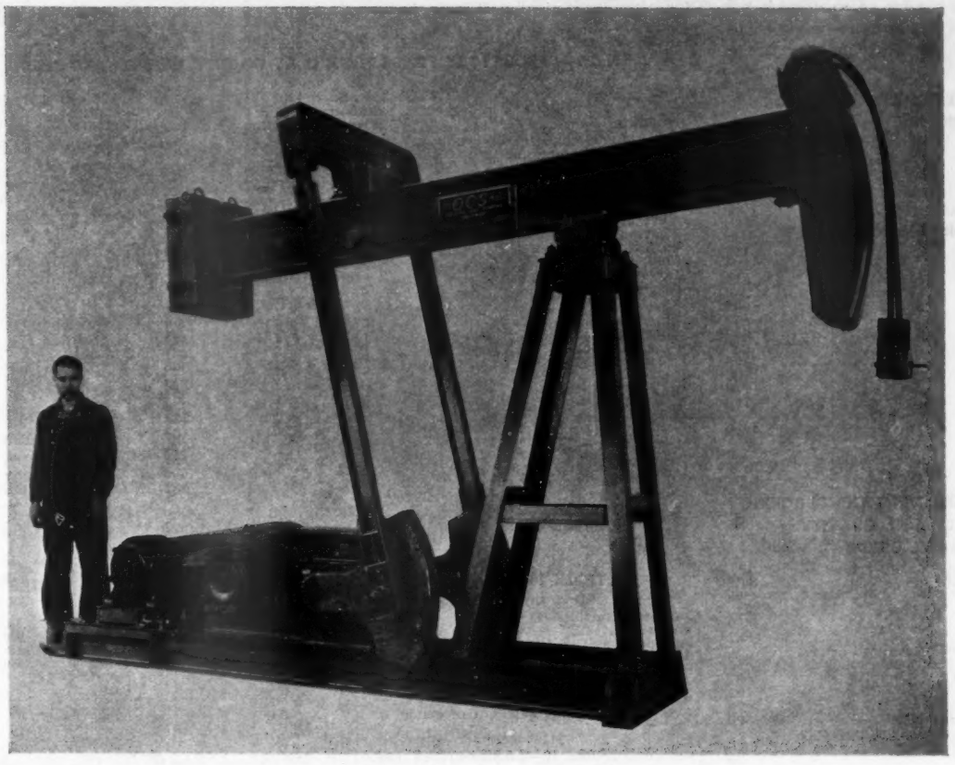
THE OIL MEN'S
HOME FOR 20 YEARS

Home Cooked Meals
Prepared by
Women Cooks

IF YOU CAN'T FIND A ROOM COME TO

HOTEL WOODWORTH
"Noted for Good Food and Comfortable Beds"
Robinson, - - - - Illinois

# Now! A Small Unit for Heavy Wells!



## The NEW OCS 5 H. P. POLLY Pumping Unit

### (Double Reduction)

### With Timken Roller Bearings and Diamond Roller Chain

FEATURES:

- 5—10.2 Horse Power.
- Polish Rod Load 10,000 Lbs.
- Stroke 24″, 34″.
- Self-Aligning Weatherproof Beam Bearings.
- For High or Slow Speeds.
- For Electric Motor or Multi-Cylinder Engines.
- Same Lubrication the Year Round.

This 5 h.p. double reduction pumping unit is a miniature of all OCS Polly type pumping units. It is identical in design, with all parts machined with the same accuracy and the same quality as the larger sizes up to 100 h.p. The one difference in principle of this unit is that it is provided with both a centrifugal and beam balance. This combination balance for a small size unit provides the unit with both the advantage of the centrifugal balance and the advantage of the beam balance. This machine makes the unit pumping of oil wells competitive with powers. It also gives the added advantage of individual well operation, which, production men agree, produces greatest recovery. Pumping wells at the speed and strokes that produce the most oil gives this machine a great advantage over central pumping plants.

The efficiency of roller bearings and roller chain provides this unit with the highest efficiency of any unit of this type and assures low power cost, particularly when electric power is purchased.

*Write for Bulletin No. 107.*

OCS

THE OIL COUNTRY SPECIALTIES MFG. CO.

COFFEYVILLE, KANSAS

LONG BEACH, CALIF. HOUSTON, TEXAS

Sales Representatives at all active points in Mid-Continent field and Hillman-Kelly, Incorporated, Los Angeles, California.

gas remaining after polymerization differs little in heating value from the original gas.

A second sample from Clinton County, obtained from the Benoist sand, has a 37.7° A.P.I. gravity and other properties as shown in Table 14. The yield of gasoline, viscosity of the crude and other properties appear to be similar to those of other Illinois crude studied. The kerosene cut is somewhat larger because of its wider boiling range.

**TABLE 11—PROPERTIES OF CENTRALIA, ILL., CRUDE OIL**

| | |
|---|---|
| Gravity, °A.P.I. | 39.2 |
| Specific gravity at 60° F. | 0.8289 |
| Cold test, °F. | Below —35 |
| B.S.&W., per cent | Trace |
| Sulfur, weight per cent | 0.18 |
| Salt, as NaCl, lbs./1,000 bbls. | 1 |
| **100 cc. Engler Distillation** | |
| I.B.P. °F | 115 |
| 5 per cent | 174 |
| 10 | 214 |
| 20 | 286 |
| 30 | 362 |
| 40 | 455 |
| 50 | 547 |
| 60 | 635 |
| 70 | 679 |
| 80 | 706 |
| 90 | 716 |
| E.P. °F. | 718 |
| Per cent over | 96.0 |
| Per cent bottoms | |
| Per cent coke by weight | 3.9 |
| Per cent loss | |

**TABLE 13—ESTIMATED SKIMMING AND CRACKING YIELDS FROM 39.0° A.P.I. GRAVITY, CENTRALIA, ILL., CRUDE**

| | |
|---|---|
| Fractionation yields, vol. per cent of crude: | |
| Gasoline (53 Oct. No., M.M.) | 37.8 |
| Kerosene | 9.8 |
| Reduced crude | 52.3 |
| Recovery | 99.9 |
| Loss | 0.1 |
| Cracking yields, vol. per cent of reduced crude: | |
| Gasoline (67-69 Oct. No., M.M.) | 55 |
| Residuum (No. 6 fuel oil) | 37 |
| Recovery | 92 |
| Loss | 8 |
| Gas, cu. ft./bbl. reduced crude | 500 |
| Total gasoline by skimming and cracking: | |
| Volume per cent of crude oil | 66.6 |
| Octane No., M.M. | 59 |
| Octane Number, L-3 Method | 60 |
| Reforming yields, vol. per cent of straightrun gasoline: | |
| Reformed gasoline (71-72 Oct. No., M.M.) | 75 |
| Reforming residue (No. 6 fuel oil) | 2 |
| Recovery | 77 |
| Loss | 23 |
| Gas, cu. ft./bbl. gasoline charge | 740 |
| Overall yields, including reforming and polymerization, vol. per cent of crude oil: | |
| Cracked gasoline | 28.8 |
| Reformed gasoline | 28.3 |
| Polymer gasoline | 60.7 |
| Total gasoline | 9.8 |
| Total residuum (No. 6 fuel oil) | 20.1 |
| Recovery | 90.6 |
| Loss | 9.4 |
| Residual gas, cu. ft./bbl. reduced crude | 460 |
| Octane rating of total gasoline: | |
| Motor Method | 69-71 |
| L-3 Method | 71-73 |

**TABLE 14—PROPERTIES OF CLINTON COUNTY, ILL., CRUDE, BENOIST SAND**

| | |
|---|---|
| Gravity, °A.P.I. | 37.7 |
| Specific gravity at 60° F. | 0.836 |
| Viscosity, S.U. at 100° F., sec. | 42 |
| **Bureau of Mines Column Distillation** | |
| I.B.P., °F. | 103 |
| 5 per cent | 163 |
| 10 | 202 |
| 20 | 270 |
| 30 | 348 |
| 40 | 431 |
| 50 | 507 |
| Summary of fractions, yield, volume per cent of crude— | |
| Gasoline and naphtha (to 200° C.) | 35 |
| Kerosene (200 to 275° C.) | 14 |
| Gas oil | 3.2 |
| Total | 52.2 |

**TABLE 15—PROPERTIES OF BEECHER CITY, ILL., CRUDE OIL**

| | |
|---|---|
| Gravity, °A.P.I. | 37.7 |
| Specific gravity at 60° F. | 0.8363 |
| Cold test, °F. | Below 0 |
| B.S.&W., per cent | 0.5 |
| Sulfur, weight per cent | 0.18 |
| Salt, as NaCl, lbs./1,000 bbls. | 3 |
| **100 cc. Engler Distillation** | |
| I.B.F. °F. | 130 |
| 5 per cent | 182 |
| 10 | 228 |
| 20 | 300 |
| 30 | 391 |
| 40 | 471 |
| 50 | 564 |
| 60 | 650 |
| 70 | 694 |
| 80 | 709 |
| 90 | 720 |
| E. P. °F. | 720 |
| Per cent over | 96.5 |
| Per cent bottoms | |
| Per cent coke by weight | 3.3 |
| Per cent loss | |

Cracking results for this crude should correspond closely to those previously shown.

## Fayette County Crude

The Beecher City field in northern Fayette County is considerably removed from other new developments in the Illinois basin. The crude produced in this area, however, does not appear to differ in any important respect from the more closely grouped fields, as illustrated by the analyses in Tables 15 and 16. A 250° F. endpoint, 69.5 octane number light gasoline was removed, followed by a 38 octane number naphtha. Yields were estimated on the topped crude for cracking

**TABLE 9—LABORATORY YIELDS FROM CLAY COUNTY, WEILER SAND CRUDE, 37.0° A.P.I. GRAVITY**

| Fraction— | 50 octane number gasoline | 420° F. E.P. gasoline | Kerosene | Gas oil | Residue after gas oil | Wax distillate | Crude residue |
|---|---|---|---|---|---|---|---|
| Yield, volume per cent of crude | 30.3 | 35.8 | 9.0 | 9.0 | 44.0 | 25.5 | 18.5 |
| Properties of fractions: | | | | | | | |
| Gravity, °A.P.I. | 61.6 | 59.6 | 40.6 | 36.8 | 20.8 | 29.2 | 13 3 |
| Specific gravity at 60° F. | 0.7328 | 0.7405 | 0.8222 | 0.8418 | 0.9291 | 0.8805 | 0.9772 |
| Viscosity, S.U.: | | | | | | | |
| At 100° F. | | | | | 1196 | 97 | |
| At 210° F. | | | | | | | 1354 |
| Thermoviscosity | | | 430 | | | | |
| Sulfur, per cent | | 0.02 | 0.02 | 0.07 | 0.24 | | |
| Cold test, °F. | | | | | +55 | +70 | +70 |
| Octane No., M.M. | 50 | 45.5 | | | | | |
| **A.S.T.M. Distillation** | | | | | | | |
| I.B.P., °F. | 111 | 115 | 426 | 500 | | | |
| 5 per cent | 140 | 151 | 434 | 519 | | | |
| 10 | 164 | 172 | 439 | 521 | | | |
| 20 | 194 | 202 | 443 | 523 | | | |
| 30 | 224 | 220 | 447 | 526 | | | |
| 40 | 235 | 246 | 451 | 527 | | | |
| 50 | 250 | 266 | 454 | 531 | | | |
| 60 | 268 | 290 | 458 | 534 | | | |
| 70 | 288 | 313 | 463 | 537 | | | |
| 80 | 306 | 340 | 471 | 540 | | | |
| 90 | 343 | 380 | 481 | 551 | | | |
| 95 | 374 | 402 | 490 | 558 | | | |
| E.P., °F. | 385 | 424 | 501 | 564 | | | |
| Per cent recovery | 97.0 | 98.2 | 98.0 | 97.2 | | | |
| Per cent residue | 1.1 | 0.9 | 1.6 | 2.4 | | | |
| Per cent loss | 1.9 | 0.9 | 0.4 | 0.4 | | | |

**TABLE 10—SULFUR DISTRIBUTION IN CLAY COUNTY, ILLINOIS, WEILER SAND CRUDE**

| Type of sulfur, in fraction— | Gasoline | Kerosene | Gas oil | Residue |
|---|---|---|---|---|
| Hydrogen sulfide ($H_2S$) | None | Trace | Below 0.005 | |
| Free sulfur (S) | None | None | Below 0.005 | |
| Mercaptan sulfur (RSH) | 0.003 | 0.003 | 0.002 | |
| Disulfides (R-S-S-R) | Below 0.002 | Below 0.002 | Below 0.002 | |
| Sulfides (R-S-R) | None | None | None | |
| Residual sulfur | 0.018 | 0.013 | 0.058 | |
| Total sulfur | 0.02 | 0.02 | 0.07 | 0.24 |
| Total sulfur, weight per cent of crude | 0.007 | 0.002 | 0.006 | 0.116 |

**TABLE 12—LABORATORY BREAKUP, CENTRALIA, ILL., CRUDE OIL, 39.2° A.P.I. GRAVITY**

| Fraction: | Gasoline | Kerosene | Topped crude | Reduced crude |
|---|---|---|---|---|
| Yield, volume per cent of crude | 37.8 | 9.8 | 62.1 | 52.3 |
| Properties of fractions: | | | | |
| Gravity, °A.P.I. | 62.6 | 42.4 | 27.0 | 24.8 |
| Specific gravity at 60° F. | 0.7290 | 0.8137 | 0.8927 | 0.9053 |
| Flash, Pensky-Martens, °F. | | | 230 | 270 |
| Reid vapor pressure, lbs./sq. in. | 10.2 | | | |
| Sulfur, weight per cent | 0.02 | 0.04 | | 0.21 |
| B.S.&W., per cent | | | Trace | Trace |
| Cold test, °F. | | | 0 | +30 |
| Viscosity, Universal, at 100° F., sec. | | | 145 | 277 |
| Viscosity, Universal, at 122° F., sec. | | | | 156 |
| Octane number, M.M. | 53 | | | |
| Characterization factor | 12.19 | 11.90 | 11.85 | 11.85 |
| **100 cc. Distillation** | | | | |
| I.B.P., °F. | 89 | 410 | 453 | 530 |
| 5 per cent | 127 | 413 | 487 | 555 |
| 10 | 144 | 415 | 506 | 580 |
| 20 | 180 | 424 | 549 | 613 |
| 30 | 207 | 428 | 593 | 647 |
| 40 | 231 | 433 | 638 | 675 |
| 50 | 252 | 439 | 670 | 698 |
| 60 | 275 | 446 | 682 | 709 |
| 70 | 298 | 454 | 694 | 720 |
| 80 | 324 | 466 | 704 | 730 |
| 90 | 353 | 487 | 730 | 740 |
| E.P., °F. | 400 | 527 | 734 | 744 |
| Per cent recovery | 98.5 | 99.0 | 95.0 | 95.0 |
| Per cent residue | 1.1 | 1.0 | | |
| Per cent coke by weight | | | 5.1 | 5.2 |
| Per cent loss | 0.4 | | | |
| Per cent at 572° F. | | | 25.0+ | 9.5 |

**TABLE 16—LABORATORY YIELDS FROM BEECHER CITY, ILL., CRUDE, 37.7° A.P.I. GRAVITY**

| Fraction: | Gasoline 250° F. E.P. | Gasoline 400° F. E.P. | Naphtha 250-400° F. | Topped crude |
|---|---|---|---|---|
| Yield, volume per cent of crude | 17.3 | 35.4 | 18.1 | 64.1 |
| Properties of fractions: | | | | |
| Gravity, A.P.I. | 75.1 | 62.1 | 51.6 | 26.7 |
| Specific gravity at 60° F. | 0.6849 | 0.7309 | 0.7728 | 0.8944 |
| Flash, Pensky-Martens, °F. | | | | 230 |
| Sulfur, per cent | 0.01 | 0.01 | 0.02 | 0.25 |
| B.S.&W., per cent | | | | 0.5 |
| Cold test, °F. | | | | 35 |
| Viscosity, Universal, sec.: | | | | |
| At 100° F. | | | | 159 |
| At 122° F. | | | | 97.5 |
| Octane No., Motor Method | 69.5 | 53.5 | 38 | |
| Characterization factor | 12.50 | 12.18 | 11.93 | 11.90 |
| **100 cc. Distillation** | | | | |
| I.B.P., °F. | 88 | 99 | 259 | 452 |
| 5 per cent | 102 | 131 | 281 | 488 |
| 10 | 112 | 150 | 286 | 503 |
| 20 | 131 | 183 | 294 | 546 |
| 30 | 146 | 208 | 302 | 598 |
| 40 | 160 | 230 | 310 | 649 |
| 50 | 172 | 252 | 320 | 682 |
| 60 | 183 | 275 | 333 | 705 |
| 70 | 194 | 298 | 346 | 718 |
| 80 | 207 | 322 | 359 | 730 |
| 90 | 226 | 352 | 377 | 738 |
| E.P., °F. | 252 | 400 | 413 | 738 |
| Per cent over | 95.0 | 98.0 | 99.0 | 96.0 |
| Per cent bottoms | 1.0 | 1.0 | 1.0 | |
| Per cent coke by weight | | | | 4.5 |
| Per cent loss | 4.0 | 1.0 | | |
| Per cent at 572° F. | | | | 25.0 |

to produce gasoline and cracked residue, and a No. 2 fuel oil distillate in the same manner as shown for processing the light Clay City crude.

Table 17 shows an overall yield of 67.0 per cent gasoline when reforming the naphtha and polymerizing the gas. This gasoline will have an octane rating of 70 to 72 by the L-3 method.

### Lawrence County Crude

The most eastern of the new discoveries lies near the Illinois-Indiana border in Lawrence County. A sample of this crude from the McClosky sand was found to be considerably lighter than the others studied, having an A.P.I. gravity of 41.3°. The recovery of 35.2 per cent gasoline and naphtha and 12.3 per cent kerosene, however, does not reflect the lighter crude gravity. These values are similar to those found for the 38-39 gravity Illinois crudes. This lighter crude gravity will be reflected in lighter residual fractions and correspondingly higher cracked gasoline yields Table 18 shows additional data on this crude.

### Marion County Crude

Extending the Illinois oil basin to the south-

*(Continued on Page 140)*

**TABLE 17—ESTIMATED SKIMMING AND CRACKING YIELDS FROM 37.7° A.P.I. GRAVITY BEECHER CITY, ILL., CRUDE**

| | |
|---|---|
| Fractionation yields, vol. per cent of crude: | |
| Light gasoline (69.5 Oct. No., M.M.) | 17.3 |
| Naphtha (38 Oct. No., M.M.) | 18.1 |
| Total gasoline | 35.4 |
| Topped crude oil | 64.1 |
| Recovery | 99.5 |
| Loss | 0.5 |
| Cracking yields, vol. per cent of topped crude: | |
| Gasoline (66-68 Oct. No., M.M.) | 52 |
| Cracked No. 2 fuel oil | 6 |
| Residuum (No. 6 fuel oil) | 33 |
| Recovery | 91 |
| Loss | 9 |
| Gas, cu. ft./bbl. topped crude | 520 |
| Total gasoline by skimming and cracking: | |
| Volume per cent of crude oil | 68.8 |
| Octane No., M.M. | 66-68 |
| Octane No., L-3 Method | 67-69 |
| Reforming yields, volume per cent of naphtha: | |
| Reformed gasoline | 73 |
| Reforming residue (No. 6 fuel oil) | 3 |
| Recovery | 76 |
| Loss | 24 |
| Gas, cu. ft./bbl. naphtha charge | 760 |
| Overall yields, including reforming and polymerization, vol. per cent of crude oil: | |
| Light gasoline | 17.3 |
| Cracked gasoline | 33.4 |
| Reformed naphtha | 13.2 |
| Polymer gasoline | 3.1 |
| Total gasoline | 67.0 |
| Cracked No. 2 fuel oil | 3.8 |
| Total residuum (No. 6 fuel oil) | 21.1 |
| Recovery | 91.9 |
| Loss | 8.1 |
| Residual gas, cu. ft./bbl. reduced crude | 390 |
| Octane rating of total gasoline: | |
| Motor Method | 68-70 |
| L-3 Method | 70-72 |

**TABLE 18—PROPERTIES OF LAWRENCE COUNTY, ILLINOIS, CRUDE, McCLOSKY LIME**

| | |
|---|---|
| Gravity, °A.P.I. | 41.3 |
| Specific gravity at 60° F. | 0.819 |
| Viscosity, S.U. at 100° F., seconds | 43 |
| **Bureau of Mines Column Distillation** | |
| I.B.P., °F. | 103 |
| 5 per cent | 186 |
| 10 | 225 |
| 20 | 285 |
| 30 | 356 |
| 40 | 430 |
| 50 | 496 |
| **Summary of Fractions** | |
| Yield, volume per cent of crude: | |
| Gasoline and naphtha (to 200° C.) | 35.2 |
| Kerosene (200° to 275° C.) | 12.3 |
| Gas oil | 3.0 |
| Total | 50.5 |

**TABLE 19—PROPERTIES OF MARION COUNTY, ILLINOIS, CRUDE, PATOKA FIELD, BENOIST SAND**

| | |
|---|---|
| Gravity, °A.P.I. | 37.0 |
| Specific gravity at 60° F. | 0.840 |
| Viscosity, S.U. at 100° F., seconds | 43 |
| **Bureau of Mines Column Distillation** | |
| I.B.P., °F. | 100 |
| 5 per cent | 174 |
| 10 | 213 |
| 20 | 288 |
| 30 | 367 |
| 40 | 446 |
| 50 | 518 |
| 55 | 529 |
| **Summary of Fractions** | |
| Yield, volume per cent of crude: | |
| Gasoline and naphtha (to 200° C.) | 33 |
| Kerosene (200 to 275° C.) | 13 |
| Gas oil | 9 |
| Total | 55 |

IN ILLINOIS, TOO!

*"You can't get along without them", — says one major oil company executive to another.*

Write for full information about this unique map service. Also, about our new ½ inch Scale Production Map. Our Mattoon, Illinois, office can take care of your requirements in Photostating, Blue Printing, Supplies, Legal Blanks, etc.

MIDCONTINENT MAP CO.
MATTOON, ILL.
Tulsa Wichita

To Serve the Lumber and Building Materials Requirements for the ILLINOIS BASIN AREA THE ACME LUMBER CO. Operates Retail Yards at . . . .

CLAY CITY
ST. ELMO
SALEM

ACME LUMBER COMPANY
*General Offices:* TULSA, OKLA., L.D. 688.

MAHAN, McCARTY & BESSE, INC.
Rig Building Contractors
New 94′ Derricks for Sale or Lease—Pumping Unit, Jack and Power Installation.

*Illinois Representatives:*
OTTO LAMBDEN — Phone 13—FLORA, ILL.
TRAVERS MAHAN — Star Hotel—FLORA, ILL.
or at Acme Lumber Company Stores Shown Above.
*General Offices:* L.D. 409, TULSA, OKLAHOMA.

# Illinois goes "Cardwell"

Double Drum Draw Works With 4½" Drill Pipe

"Cardwell" is Out in Front With Over 50 New Drilling Rigs Delivered In Illinois In 15 Months

*Quicker Rig-up and Faster Drilling Means More Footage With* "CARDWELL" DRAW WORKS— *Considerably Lower Cost Per Foot*

Three Sizes
Draw Works — Single or Double Drums

**ALLSTEEL PRODUCTS MFG. CO.**
Wichita, Kansas, U. S. A.
801 So. Wichita St., P. O. Drawer 2001
Cable Address "Allsteel" Phones L. D 289, Local 4-4381, 4-4389

CARDWELL ALLSTEEL
REG U S TRADE MARK PAT OFFICE
THIS TRADE MARK INSURES HIGHEST QUALITY AT LOWEST PRICE

Parts Stock Store and Service, Phone 2901—Salem, Illinois

# *from Start to Finish*

*With Portable Equipment to fill the Toughest Requirements in the Solution of Oil Field Problems*

"CARDWELL"
*Completes the Job with Speed and Economy*

"Drilling-in" with Cable Tools behind the Rotary

**INITIAL COST IS LOW THROUGH COMPETENT ENGINEERING AND DESIGN**

**WITH PLANT FACILITIES FOR MANUFACTURING SECOND TO NONE**

CARDWELL ALLSTEEL
REG. U.S. TRADE MARK PAT. OFFICE
THIS TRADE MARK INSURES HIGHEST QUALITY AT LOWEST PRICE

**ALLSTEEL PRODUCTS MFG. CO.**
Wichita, Kansas, U. S. A.
801 So Wichita St., P. O. Drawer 2001
Cable Address "Allsteel" Phones L. D 289, Local 4-4381, 4-4389

MOBILHOIST CARDWELL
REG. U.S TRADE MARK PAT. OFFICE

Local Representative, Mr. H. E. Reece, Phone 2901, Salem, Illinois

Oilmen
Come to
TERRE HAUTE!
Metropolis of the Terre Haute
Illinois-Indiana
Oil Fields—
HERE YOU WILL FIND the finest metropolitan banking facilities, excellent big-city hotels, splendid stores, mechanical supply houses, four main trunk line railroads offering shipping and passenger facilities to all points—and added to these, Terre Haute has every factor that makes for good living, good business and—
LOTS OF FUN!
When you say "I'm an oil man," Terre Hauteans will welcome you warmly and go out of their way to see that your visit, business or pleasure, is "Tops". Best of all, Terre Haute is just a short pleasant trip via auto or bus. Come any time—make it this week-end.
COME ONCE—We Know You'll Come Often!
"Oil" Roads Lead to Terre Haute
TERRE HAUTE CHAMBER OF COMMERCE
Clay City
Noble

west is the new Patoka field in Marion County. From the Benoist sand in this district a 37.0° A.P.I. gravity crude was obtained, from which was distilled 33 per cent gasoline and 13 per cent kerosene, as shown in Table 19. This oil falls into the pattern of properties of crudes from the other Illinois fields without an exception. Cracking, reforming, and polymerization yields may be expected to follow suit.

### Richland County Crude

The McClosky sand in the Noble field, Richland County, has contributed substantially to the production which established this field as the largest of the new Illinois fields in 1937. The analysis of a 39.0° A.P.I. gravity specimen of the crude from this source is given in Table 20. This shows yields of 33 per cent gasoline and 12.1 per cent kerosene, indicating it to be about the same quality as the other Illinois crudes.

### Wayne County Crudes

Wayne County contains in addition to the southeast Clay City field a number of small producing areas, with oil found at various levels. One sample from the Ste. Genevieve limestone or McClosky "sand" had the properties shown in Table 21. This 37.8° A.P.I. gravity crude was fractionated as shown in Table 22 to 30.6 per cent of 50 octane number gasoline or 35.6 per cent of 420° F. endpoint gasoline, 7.0 per cent kerosene, 10.0 per cent gas oil and 23.3 per cent wax distillate, leaving 22.3 per cent of 18° A.P.I. gravity residue. The low sulfur content of the crude and its fractions appears to be typical.

A crude sample from the Bradley sand in Wayne County was found to have an A.P.I. gravity of 39.2° and contain 0.13 per cent sulfur. On fractionation 38.5 per cent of 420° F. endpoint gasoline, 7.0 per cent kerosene, and 14.0 per cent gas oil were removed. Detailed results are shown in Table 24 from which it is noted that these crudes are similar to the other new Illinois crudes. Cracking yields will also be similar to those already shown.

### Summary

The new Illinois crudes are quite uniform in quality, and compare favorably with Mid-Continent

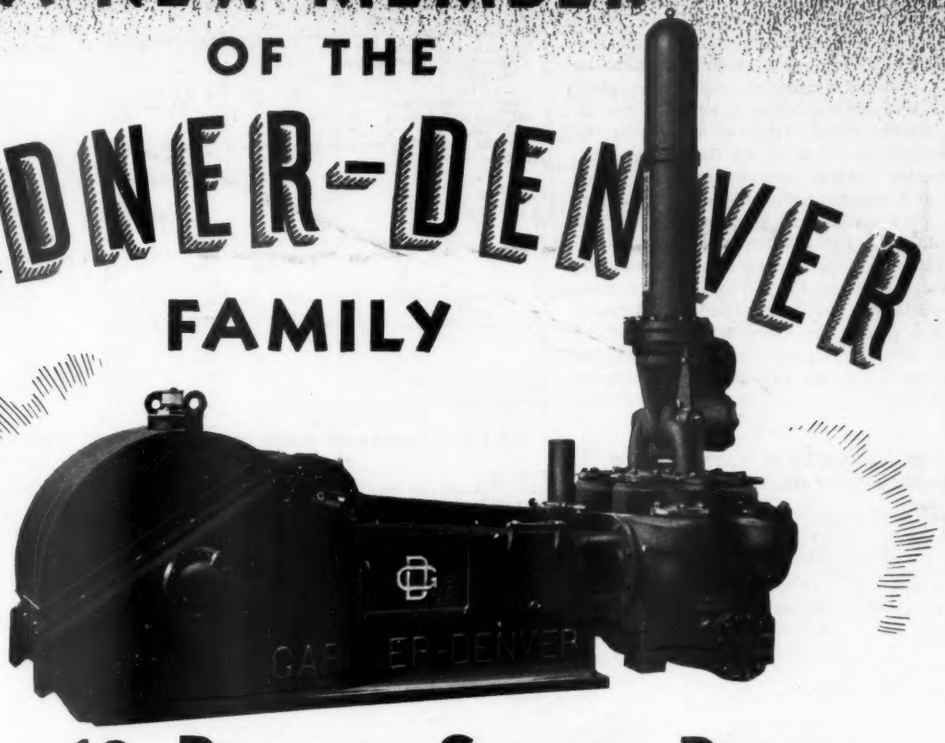
**TABLE 20—PROPERTIES OF RICHLAND COUNTY, ILLINOIS, CRUDE, NOBLE FIELD, McCLOSKY LIME**

| | |
|---|---|
| Gravity, °A.P.I. | 39.0 |
| Specific gravity at 60° F. | 0.830 |
| Viscosity, S.U. at 100° F., seconds | 42 |
| **Bureau of Mines Column Distillation** | |
| I.B.P., °F. | 103 |
| 5 per cent | 175 |
| 10 | 211 |
| 20 | 286 |
| 30 | 370 |
| 40 | 444 |
| 50 | 495 |
| 55 | 509 |
| **Summary of Fractions** | |
| Yield, volume per cent of crude: | |
| Gasoline and naphtha (to 200° C.) | 33 |
| Kerosene (200 to 275° C.) | 12.1 |
| Gas oil | 9.9 |
| Total | 55 |

**TABLE 21—PROPERTIES OF WAYNE COUNTY, ILLINOIS, CRUDE OIL, STE. GENEVIEVE LIMESTONE**

| | |
|---|---|
| Gravity, °A.P.I. | 37.8 |
| Specific gravity at 60° F. | 0.8358 |
| Cold test, °F. | —25 |
| B.S.&W., per cent | 0.35 |
| Viscosity, S.U. at 100° F., seconds | 44 |
| Sulfur, weight per cent | 0.12 |
| Water, per cent | 0.3 |
| **2,000 cc. Column Distillation** | |
| I.B.P., °F. | Below 140 |
| 5 per cent | 140 |
| 10 | 200 |
| 20 | 303 |
| 30 | 380 |
| 40 | 486 |
| 50 | 594 |
| 60 | 690 |
| 70 | 798 |
| 80 | |
| 90 | |
| E.P., °F. | |
| Per cent over | 76.2 |
| Per cent bottoms | 22.3 |
| Per cent coke by weight | |
| Per cent loss | 1.5 |

# A NEW MEMBER OF THE GARDNER-DENVER FAMILY



## 7¼ x 12 Power Slush Pump

| Size | Rated Horsepower | Maximum Recommended Speed |
|---|---|---|
| 7¼ x 10 | 100 | 65 r.p.m. |
| 7¼ x 12 | 150 | 65 r.p.m. |
| 7¼ x 14 | 200 | 60 r.p.m. |
| 7¾ x 16 | 250 | 55 r.p.m. |
| 7¾ x 20 | 400 | 50 r.p.m. |

Incorporating all the features that have made the Gardner-Denver line famous throughout the oil country, this new 7¼ x 12 Power Pump widens the scope of G-D service.

A size suitable for medium rotary duty, it is adaptable to any type of prime mover with equal satisfaction. With the same field-proved working parts—herringbone gears, Duo-seat valves and Slush-proof liners—you can depend on this pump for hole-after-hole of trouble-free service.

**THE CONTINENTAL SUPPLY COMPANY**

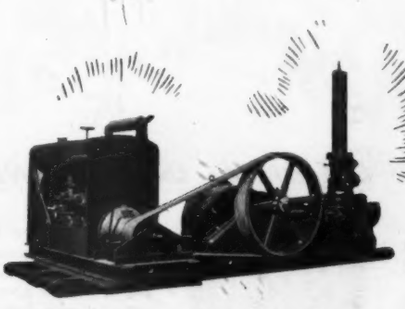
General Offices: DALLAS, TEXAS

Export Office: CONTINENTAL EMSCO CO., Inc.
30 Rockefeller Plaza New York City, N. Y.

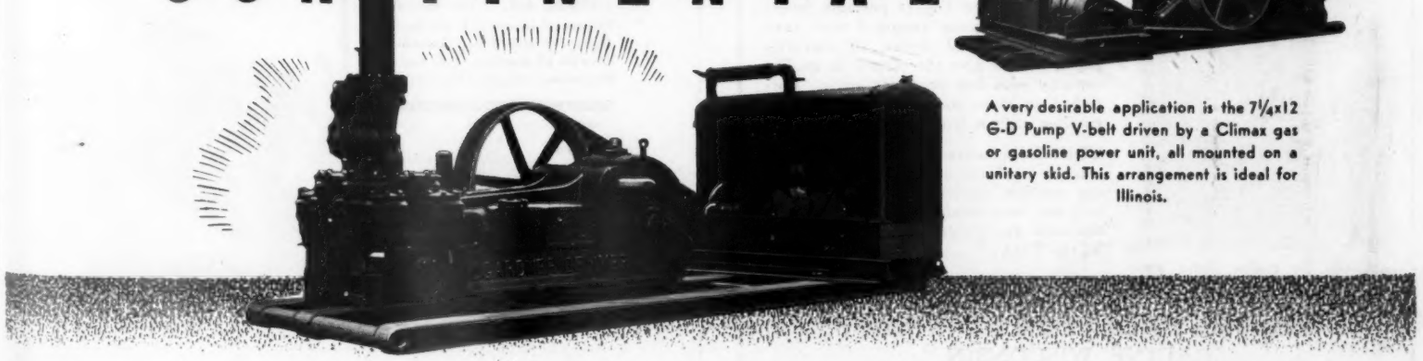
Representatives:
LONDON TRINIDAD MARACAIBO TAMPICO BUENOS AIRES

"SERVING THE OIL AND GAS INDUSTRIES"

**CONTINENTAL**



A very desirable application is the 7¼x12 G-D Pump V-belt driven by a Climax gas or gasoline power unit, all mounted on a unitary skid. This arrangement is ideal for Illinois.



crudes. Their sulfur contents are low and treatment of the gasoline, kerosene, etc., to produce marketable products is simple and economical. These crudes provide excellent cracking stock. When combining skimming and cracking, yields up to 74 per cent of 60 octane gasoline are obtainable, producing only No. 6 grade fuel oil and gas in addition. By employing gasoline or naphtha reforming and polymerization of cracking plant gases, yields of gasoline up to 71 per cent may be obtained having octane ratings of 69 to 70 by the motor method or 71 to 72 by the L-3 method. Higher octane ratings are obtainable by these methods at a slight sacrifice in yield. Additional distillate products such as kerosene, gas oil, and cracked domestic fuel oil may also be produced.

The authors appreciate the data and information received from Dr. Cary Wagner of the Pure Oil Co. relating to Clay County-Weiler sand crude, and Wayne County-Ste. Genevieve and Bradley formation crudes, and that received from Dr. M. M. Leighton of the Illinois State Geological Survey on Patoka, Noble, Clinton, and Lawrence crudes.

**TABLE 23—PROPERTIES OF WAYNE COUNTY, ILLINOIS, CRUDE OIL, BRADLEY SAND**

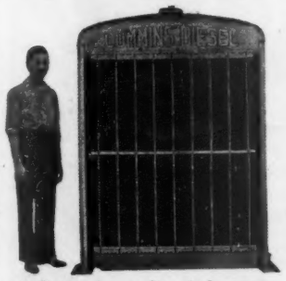
| | |
|---|---|
| Gravity, °A.P.I. | 39.2 |
| Specific gravity at 60° F. | 0.8289 |
| Cold test, °F. | Below —35 |
| B.S.&W., per cent | Trace |
| Viscosity, S.U. at 100° F., seconds | 42 |
| Sulfur, weight per cent | 0.13 |
| Water, per cent | None |
| **2,000 cc. Column Distillation** | |
| I.B.P., °F. | Below 130 |
| 5 per cent | 175 |
| 10 | 209 |
| 20 | 291 |
| 30 | 371 |
| 40 | 465 |
| 50 | 552 |
| 60 | ..... |
| 70 | ..... |
| 80 | ..... |
| 90 | ..... |
| E.P., °F. | ..... |
| Per cent over | 59.5 |
| Per cent bottoms | 38.9 |
| Per cent coke by weight | ..... |
| Per cent loss | 1.6 |

**TABLE 22—LABORATORY YIELDS FROM WAYNE COUNTY, STE. GENEVIEVE FORMATION CRUDE. 37.8° A.P.I GRAVITY**

| Fraction— | 50 octane number gasoline | 420° F. E.P. gasoline | Kerosene | Gas oil | Reduced crude | Wax distillate | Crude residue |
|---|---|---|---|---|---|---|---|
| Yield, volume per cent of crude | 30.6 | 35.6 | 7.0 | 10.0 | 45.6 | 23.3 | 22.3 |
| Properties of fractions: | | | | | | | |
| Gravity, °A.P.I. | 59.7 | 57.4 | 40.9 | 36.3 | 22.9 | 29.7 | 18.0 |
| Specific gravity at 60° F. | 0.7401 | 0.7491 | 0.8208 | 0.8433 | 0.9165 | 0.8778 | 0.9465 |
| Viscosity, Universal, sec.: | | | | | | | |
| At 100° F. | ..... | ..... | ..... | ..... | 1183 | 92 | ..... |
| At 210° F. | ..... | ..... | ..... | ..... | ..... | ..... | 474 |
| Thermoviscosity | ..... | ..... | 455 | ..... | ..... | ..... | ..... |
| Sulfur, per cent | ..... | 0.04 | 0.04 | 0.08 | 0.23 | ..... | ..... |
| Cold test, °F. | ..... | ..... | ..... | ..... | +65 | +60 | +50 |
| Aniline point, °F. | ..... | ..... | ..... | 166 | ..... | 192 | ..... |
| Octane No., M.M. | 50 | 45 | ..... | ..... | ..... | ..... | ..... |
| **A.S.T.M. Distillation** | | | | | | | |
| I.B.P., °F. | 108 | 128 | 422 | 496 | ..... | ..... | ..... |
| 5 per cent | 149 | 163 | 434 | 507 | ..... | ..... | ..... |
| 10 | 168 | 181 | 436 | 511 | ..... | ..... | ..... |
| 20 | 196 | 209 | 440 | 518 | ..... | ..... | ..... |
| 30 | 219 | 232 | 443 | 522 | ..... | ..... | ..... |
| 40 | 236 | 254 | 446 | 527 | ..... | ..... | ..... |
| 50 | 252 | 277 | 449 | 533 | ..... | ..... | ..... |
| 60 | 273 | 302 | 456 | 540 | ..... | ..... | ..... |
| 70 | 292 | 328 | 462 | 548 | ..... | ..... | ..... |
| 80 | 318 | 352 | 469 | 559 | ..... | ..... | ..... |
| 90 | 344 | 381 | 480 | 576 | ..... | ..... | ..... |
| 95 | 370 | 402 | 494 | 589 | ..... | ..... | ..... |
| E.P., °F. | 394 | 425 | 502 | 591 | ..... | ..... | ..... |
| Per cent recovery | 98.5 | 98.5 | 98.0 | 96.5 | ..... | ..... | ..... |
| Per cent residue | 0.9 | 1.0 | 1.0 | 2.8 | ..... | ..... | ..... |
| Per cent loss | 0.6 | 0.5 | 1.0 | 0.7 | ..... | ..... | ..... |

**TABLE 24—LABORATORY YIELDS OF WAYNE COUNTY, BRADLEY SAND, CRUDE OIL, 39.2° A.P.I. GRAVITY**

| Fraction: | 420° F. E.P. gasoline | Kerosene | Gas oil | Reduced crude |
|---|---|---|---|---|
| Yield, volume per cent of crude | 38.5 | 7.0 | 14.0 | 38.9 |
| Properties of fractions: | | | | |
| Gravity, °A.P.I. | 58.0 | 39.0 | 35.5 | 22.7 |
| Specific gravity at 60° F. | 0.7467 | 0.8299 | 0.8473 | 0.9176 |
| Viscosity, Universal, at 100° F., sec. | ..... | ..... | ..... | 1789 |
| Sulfur, per cent | 0.02 | 0.02 | 0.08 | 0.22 |
| Aniline point, °F. | ..... | ..... | 169 | ..... |
| Cold test, °F. | ..... | ..... | ..... | +60 |
| **A.S.T.M. Distillation** | | | | |
| I.B.P., °F. | 108 | 444 | 524 | ..... |
| 5 per cent | 152 | 454 | 540 | ..... |
| 10 | 172 | 460 | 545 | ..... |
| 20 | 207 | 464 | 550 | ..... |
| 30 | 233 | 466 | 555 | ..... |
| 40 | 257 | 467 | 560 | ..... |
| 50 | 280 | 469 | 566 | ..... |
| 60 | 307 | 471 | 572 | ..... |
| 70 | 336 | 474 | 580 | ..... |
| 80 | 364 | 478 | 590 | ..... |
| 90 | 392 | 486 | 606 | ..... |
| 95 | 409 | 494 | 618 | ..... |
| E.P., °F. | 420 | 499 | 630 | ..... |
| Per cent recovery | 97.5 | 97.8 | 97.0 | ..... |
| Per cent residue | 1.0 | 1.2 | 2.7 | ..... |
| Per cent loss | 1.5 | 1.0 | 0.3 | ..... |



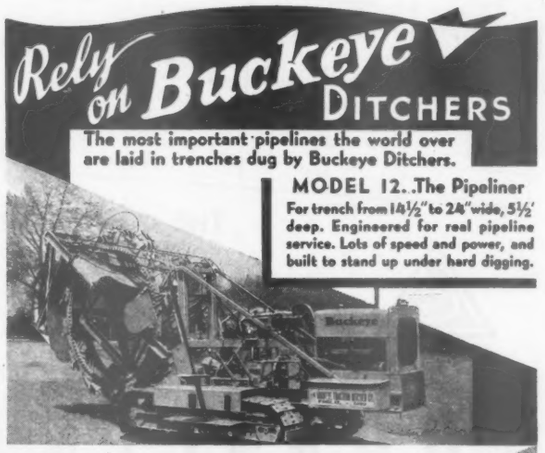
*Radiators for cooling jacket water and lubricating oil in the same unit are available for any type of engine.*

A complete new line of portable jacket water cooling units equipped with fans, water pumps, and drives all correctly engineered to give the utmost in cooling capacity with low operating costs. Furnished in sizes to cool gas, Diesel, or gasoline engines from 25 to 250 H.P.

YOUNG radiators, oil coolers and heat transfer surfaces are available to meet any specific cooling requirement. Each unit has been carefully developed with a thorough knowledge of its requirements in the field.

*Write for literature.*

**YOUNG RADIATOR COMPANY**
RACINE, WISCONSIN


Rely on Buckeye
DITCHERS
The most important pipelines the world over are laid in trenches dug by Buckeye Ditchers.
MODEL 12..The Pipeliner
For trench from 14½" to 24" wide, 5½' deep. Engineered for real pipeline service. Lots of speed and power, and built to stand up under hard digging.

MODEL 49. . .The Mainliner
BIG trench is easy with this Buckeye. Digs to 43" wide, 8' deep. Transmission drive for all operations fully enclosed. Ruggedness and power keep costs low.
WRITE FOR COMPLETE INFORMATION
Originators of the Wheel Type Ditcher
THE BUCKEYE TRACTION DITCHER COMPANY
FINDLAY, OHIO

**Rubbers**
can be co
This well
for a ma

# BE
# FR

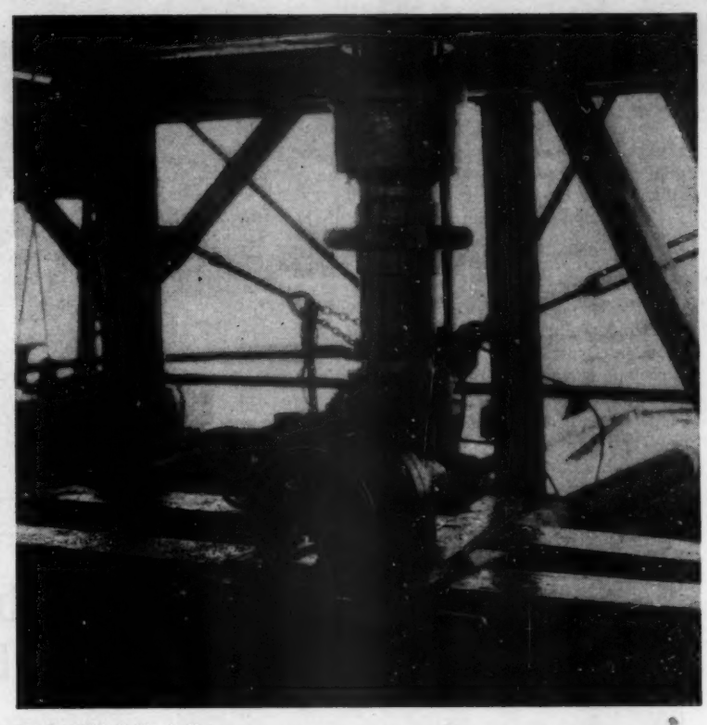
This to
kell
Drilling
in one
under c
is need
vide ba

In d
oil, as c
ator ca
initial
high-pr
be use
elimina
life and

This
around
kelly, e

New GU
Drilling
Blow-Out
Stripper.

**Rubbers Make Record.** "The Guiberson is the only drilling head with which a well can be completed without having to change the rubbers," says C. A. Kebodea, driller, left. This well, in the Goldsmith Field, West Texas, is being drilled by Walsh Drilling Company for a major oil company. At right is J. C. Owen, Guiberson West Texas representative.



**Typical Well Hook-Up,** using Guiberson Drilling Head. Slater Midcontinent Company No. 2, drilled by Kirk-Greenway, Inc., Tulsa. Rubbers showed only slight wear after 10 trips using square kelly. 84,000 feet of drill pipe, with square-shoulder tool joints, was pulled through rubbers. Pressures from 50 to 1200 lbs. handled without leakage.

# BETTER WELLS RESULT FROM NEW DRILLING HEAD

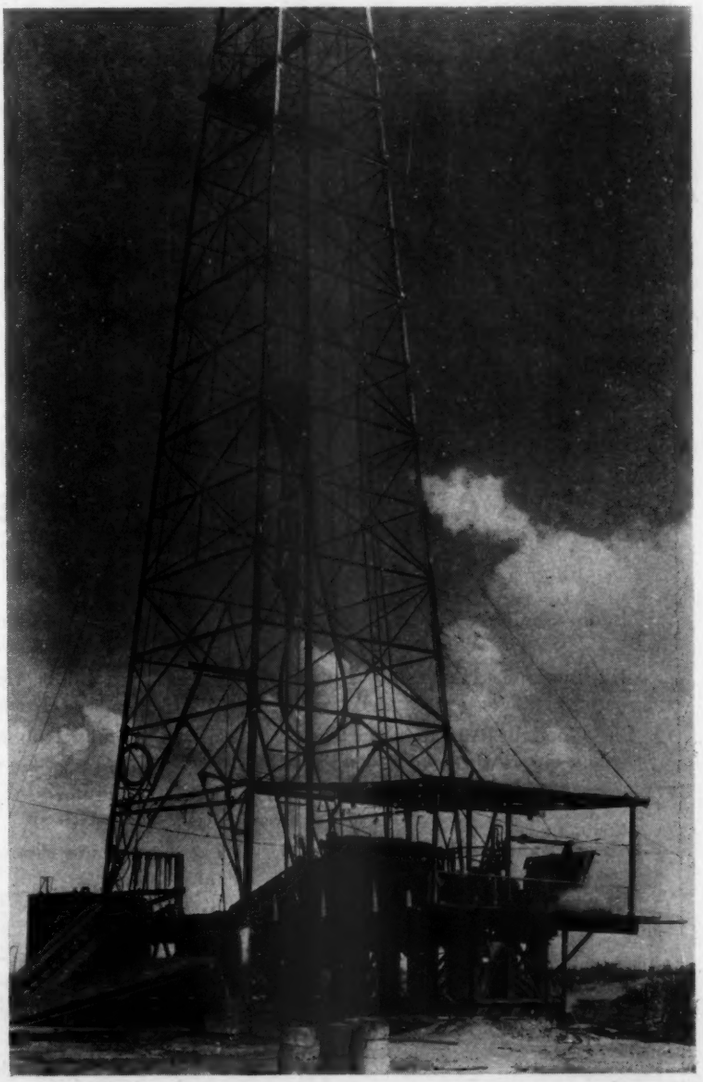
This tool is designed as a leak-proof rotating pack-off between the kelly or drill pipe and the casing. The GUIBERSON "Type E" Drilling Head, Rotating Blow-Out Preventer, and Stripper incorporates in one tool the features which are most desirable for drilling-in wells under controlled pressure, or for drilling operations where a pack-off is needed to withstand high pressures and prevent blow-outs or provide back pressure on the drilling fluid.

In drilling-in wells under controlled pressure, using oil, or gas and oil, as a circulating fluid, this head protects the pay formation. Operator can produce the well while drilling in the formation; gets more initial production and greater ultimate recovery. In drilling deep, high-pressure wells, a much lighter drilling fluid than ordinary can be used, thus saving on mud cost. Again, the elimination of mud eliminates mud and water penetration in the sand, assuring longer life and greater production.

This head (1) takes the place of two or more tools for packing off around kelly and stripping drill pipe; (2) has packing that rotates with kelly, eliminating wear; (3) packs off against high and low pressures and, except against highest pressures, is only blow-out preventer needed; (4) strips standard drill pipe with tool joints, flush-joint drill pipe, and tubing, thus is only stripper needed; (5) does not have to be disconnected from well hook-up except when removing bits; (6) fits any hook-up, using union or adapter. Head is nickel alloy steel, tested to 3,000 lbs., and recommended for pressures up to 1500 lbs.

New GUIBERSON Type "E" Drilling Head, Rotating Blow-Out Preventer and Stripper. Patents Pending.

Write for descriptive bulletin and field performance records. The Guiberson Corporation, 1000 Forest Ave., Dallas, Texas. Export: I. Frank Brown, 30 Rockefeller Plaza, New York. California: W. R. Guiberson Co., 723 E. Gage Ave., Los Angeles.



**In West Texas.** Same well shown in picture at left above, in the Goldsmith Field, in West Texas. Guiberson Drilling Heads are now in active use and performing successfully in New Mexico, West Texas, Central West Texas, Oklahoma, and the Gulf Coast.

## PRODUCING PRACTICES

*(Continued from Page 63)*

point of porosity and permeability. In many cases, cores of the McClosky are extremely porous readily allowing the passage of air through them. Structure also greatly affects the amount of production.

The maximum ultimate recovery in both the lime and sand fields varies widely because of the above factors, the McClosky ranging from 2,500 to 5,000 bbls. per acre and the sands from 4,000 to 11,500 bbls. per acre. Frequently, several producing horizons are present in the same field, notably the Louden (Cypress, Bethel and occasionally the Paint Creek and "Niagaran") and Lake Centralia (Bethel and McClosky) regions. Recovery per acre will depend on the amount of oil in the several horizons.

The average pool opener in the McClosky fields produced around 1,300 bbls. per day, ranging from 40 to 2,642 bbls. Until the opening of the Lake Centralia field, sand area discoveries were not large, varying from 40 to 200 bbls. per day and averaging 112 bbls. Texas No. 1 Tate in NE NW NW Section 5-1n-2e, Raccoon Township, was completed on August 24, 1938, for 391 bbls. of oil from the Benoist topped at 1,658 feet. Larger wells came later in the development of each field as more porous sand beds, better located structurally, were drilled. Several 1,500-bbl. wells and better have been completed in both of the major sand pools. In the lime fields, the discovery is often the largest well.

### Well Completions

Gas pressure in both the McClosky and the Benoist is not great, generally running around 500 pounds per square inch in the former and 250 pounds per square inch in the latter. Some McClosky wells, particularly those not having favorable porosity, have less than 100 pounds per square inch and the wells must be pumped from the start. The same is true of the sand wells, some of them having as little as 50 pounds per square inch gas pressure. The gas volume is also generally very small, rarely exceeding 100,000 feet per day. The No. 1 Birdhaven of the Pyramid Oil Co., the pool opener northeast of Olney, had sufficient pressure and volume to prevent the running of tubing in the hole and connections had to be made to flow the well when the tubing was still 500 feet off bottom. The No. 3 Morelan of H. H. Weinert in the Fairfield pool made 3,800 bbls. of oil and 90,000 feet of gas when it was completed. Both of these were large wells and generally the McClosky wells do not approach closely to the above figures.

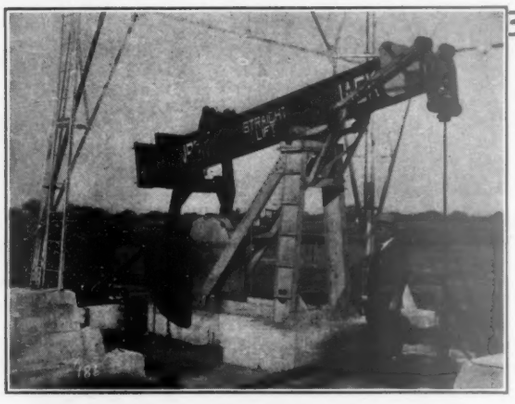
Due to the wide range of sand conditions and well pressures, there is also a variety of completion procedures. The main two are by rotary and cable tool rigs, the former finding favor in the McClosky pays and the latter in the sand pays. With more pressure being encountered in the Lake Centralia and Louden fields, operators have been completing wells in these areas with rotary.

There is not the danger of drilling into water in the McClosky areas and most wells are completed by coring the pay, running the casing and tubing, washing, and then swabbing through the tubing. Where no gas is anticipated and a light well expected, cable tools are used for completion, sometimes the casing being run without first coring with the rotary rig. Most of the lime producers take a potential test on the wells and then acidize, with others waiting until production declines. Generally, one large treatment is used in preference to several small ones.

### Completions in Benoist

In the sand areas many operators hesitate to core the Benoist with the rotary as they do not want to subject the sand to contamination of the mud. Procedure in this case is to set pipe and then drill in with a spudder. Others are curious to see what the sand looks like before running the pipe. Few wells were produced in the Centralia field without first shooting as operators did not stop to test the well before attempting to loosen the sand. For this reason, many will never know the effect of the shot. In many wells, shooting could have been postponed until after the production subsided and many operators wished they had followed that procedure, particularly after the bottom of the pipe was shot loose. Only light shots were used, generally from 10 to 15 quarts, but in some cases there was not enough room between the shot and the bottom of the pipe to allow for sufficient tamping. Running of a cement retainer and a squeeze job was required to obtain a shutoff. In the Lake Centralia district, the wells are tested and in some cases produced for quite a while before shooting. The sand has a thickness of around 46 feet and there is ample room for the shot and tamping without danger of damage to the casing or casing seat. The problem is more complicated in the Louden area as it is desirable to shoot both the Cypress and the Bethel and still have the intermediate space cased off. Procedure has been to perforate the upper formation and shoot the lower with a fairly heavy charge, from 30 to 50 quarts and in some cases 80-quart shots are made.

The McClosky does not generally have much water in the lower part of the pay but some sections, particularly in the central part of the basin and further south in the Fairfield district, are finding upward to 10 per cent in the produced oil. The sands, contrary to the first optimistic opinions, contain water in the lower levels and operators who drilled "as long as there was sand" have found that they are going to be forced to plug back or lose their wells. This is particularly true in the Centralia townsite area where many operators were overanxious in their efforts to obtain better

JENSEN BROTHERS Manufacturing Co. Coffeyville, Kansas U. S. A.

Everybody Likes JENSEN Units!

The office likes JENSEN Units because they make production more profitable and satisfactory all around.

The engineer likes JENSEN Units because he knows that mechanical improvements are incorporated as soon as they can be tried and proven. He knows that the life of a pumping unit depends on the gear reduction, and he heartily approves JENSEN engineering.

The pumper likes JENSEN Units because they remain dependable with minimum attention.

Any producer who digs into the facts about JENSEN JACKS is favorably impressed. And the facts that fit your problems are here for you —WHY NOT ASK FOR 'EM?

ILLINOIS BASIN OPERATORS
WE ARE HERE TO SERVE YOU

DISTRIBUTORS FOR:

Union Chain & Manufacturing Co. (Rotary and Roller Chain)

A. Leschen & Sons Rope Company (All Wire Rope Products)

International Harvester Company (Engines and Parts)

St. Louis Cordage Mills (Manila Rope and Cordage)

Goodall Rubber Company (Longlife Rotary Hose and Rubber Products)

Gates Rubber Company (V-Belts and Sheaves)

Century Electric Company (All Types of Electric Motors and Generators)

Other Products Handled — Casing — Tubing — Line Pipe — Rods — Pumping Units — Tanks — Tools.

SEE US FOR OIL WELL SUPPLIES

WESTERN MACHINERY COMPANY

*Headquarters:* SAINT LOUIS, MISSOURI.
408 Olive Street—Ph. Chestnut 7710.

*Branch Offices:* CENTRALIA, ILLINOIS—Ph. 1567—CLAY CITY, ILLINOIS—Ph. 128

# We recommend it for 5000′ wells — yet this *red-hed* Chain Drilled Four 8000′ wells

● Here's an example of the margin of safety that's built into every Link-Belt chain. We do not recommend RED-HED for deep drilling, yet it performed to the entire satisfaction of this operator in drilling these four deep Gulf Coast wells. The high speeds and heavy loads encountered in drilling these wells would have been a big assignment for even the most costly chain, yet RED-HED did the job . . . and it's still going strong, thanks to the men on the derrick floor who know how to take proper care of their equipment.

RED-HED is one of seven types of Link-Belt rotary chain, each of which is designed to meet a particular drilling problem. Address Link-Belt Company, Indianapolis, Philadelphia, Los Angeles, New York, Houston, Dallas, or Tulsa.

5910

production. North of Centralia most of the wells are making some water, about 10 per cent.

The water treats out easily with the application of heat, some chemicals, and agitation. In the Fairfield district, H. H. Weinert is rigging up a complete treating system consisting of a separator, automatic heater, automatic chemical feeder, and a 750-bbl. shotgun tank. Oil is run from the gunbarrel tank to storage. The water problem is not very great at present, running only about 3 per cent. If it should get worse, this operator would be in a position to handle it.

Tank batteries vary according to the taste of the operator but are most often either two 250-bbl. bolted or two 210-bbl. welded. There are several batteries of six high 500-bbl. tanks in the Centralia and Fairfield areas. The welded tanks have an advantage in that they can be used on a lease while production is heavy and then moved to another lease without the cost of dismantling and erection. In Kentucky, many tank batteries consist of numerous 100-bbl. welded tanks while some operators are using combination batteries of 250- or 500-bbl. bolted and 100- or 210-bbl. welded tanks. On larger batteries, used for storage for an entire lease, two separators are used, one for gauging individual wells while the other takes care of normal flow from the lease. The 30-inch by 10-foot separator having a 250-pound working pressure capacity is most frequently seen in the sand areas with larger separators being used in the lime fields.

### Mostly Pumping Wells

Of the 244 completions up to January, 1938, only 1.1 per cent were flowing naturally on that date. The exact number of pumping wells at the present time is unknown but with the completion of 470 wells in the Centralia field, practically every one of which was a pumper, the per cent of flowing wells to pumping wells has probably been reduced.

Generally, the flowing life of both the sand and lime wells is not long, being from two to three months. More often, wells are put on the pump immediately after acidizing or as soon as they are cleaned out after the shot. On the smaller leases and the townsites, individual jacks are driven by either internal combustion engines or electric motors. On wells equipped with 2-inch tubing and five-eighths inch rods, a jack of from 0.6 to 1.2 hp. when operating at 20 s.p.m. is required for wells under 1,400 feet. For 2½-inch tubing, size of the units is increased to those capable of handling 1- to 1¾-hp. load at the same number of strokes per minute. This size jack is generally equipped with a 5-hp. electric motor or internal combustion engine until the heavy production is pumped off and then it is replaced by a smaller motor of 3 hp. There is a wide range of pumping units available from manufacturers and some operators have found it better to equip their wells with larger jacks for the first few months and then replace them with smaller ones and move the larger jacks to new wells. Wells in the deeper part of the basin are equipped with either 2-inch tubing and five-eighths inch rods or 2½-inch tubing and three-quarters inch rods.

Many wells will be pumped throughout their life with the individual pumping units as some of the leases are small and others are planning on pumping by electric motors operated with either purchased current or by power manufactured on the lease. Carter Oil Co. already has several central power plants in operation in the Louden area which are supplying electric current for 16 wells each, and the Texas Co. is reported to be contemplating the same method of producing their properties in the Lake Centralia area.

Pure Oil Co. has one of the more successful arrangements which is workable because of the size of their operations. Completed wells are equipped with individual pumping units or allowed to flow as long as possible. As soon as a sufficient number of wells to require a geared power have been completed, the units are replaced by pumping jacks. This company has seventeen 100-hp. geared powers installed and will soon be installing three more. Snowden & McSweeney is emulating the example set by Pure Oil on one of their leases in Kentucky where they are installing a 30-hp. geared power for the pumping of five wells. This power has a maximum capacity of 11 wells. Gulf Refining Co. is operating 12 wells with a geared power in the Centralia field. This power is operated by a 40-hp. horizontal oil-burning engine.

**COMPARISON OF 10 WELLS COMPLETED IN THE LOUDEN FIELD AND 10 WELLS COMPLETED IN THE CENTRALIA FIELD DURING AUGUST, 1938, BOTH SHOWING A WIDE DIFFERENCE IN THE VOLUME OF OIL AND THE DEPTHS OF THE SANDS**

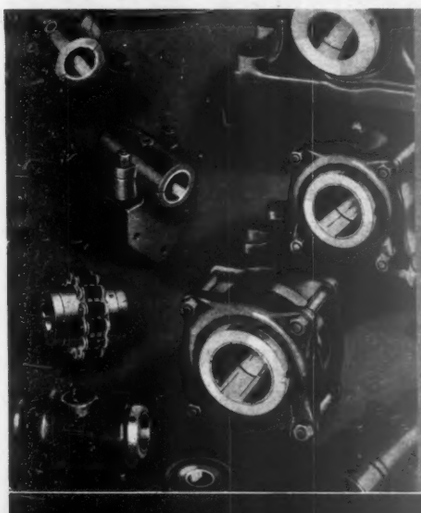
| Company— | Well | Comp. | Producing formation | Top | Total depth | Shot | Production |
|---|---|---|---|---|---|---|---|
| | | | **Louden** | | | | |
| Carter Oil Co. | No. 1 R. Fortner | 8- 2-38 | Bethel | 1,586 | 1,600 | 20 | 88 |
| Carter Oil Co. | No. 1 Irwin Hobbs | 8-31-38 | Bethel | 1,492 | 1,528 | 80 | 915 |
| Carter Oil Co. | No. 2 Bartimus | 8-31-38 | Bethel | 1,534 | 1,560 | 60 | 398 |
| Kingwood Oil Co. | No. 4 Yolton | 8-31-38 | Cypress | 1,481 | 1,523 | .. | 214 |
| Canary-Sherman | No. 1 Sefton | 8-24-38 | Cypress | 1,515 | 1,576 | .. | 115 |
| J. P. Babcock | No. 3 Rhodes | 8-31-38 | Bethel | 1,583 | 1,579 | 30 | 90 (oil) 13 (w) |
| Jarvis Bros. | No. 2 Sinclair | 8-31-38 | Bethel | 1,457 | 1,487 | 40 | 600 |
| Jarvis Bros. | No. 3 Sinclair | 8-31-38 | Bethel | 1,447 | 1,479 | .. | 559 |
| W. C. McBride, Inc. | No. 1 Stokes | 8- 2-38 | Cypress | 1,437 | 1,532 | 40 | 350 |
| W. B. Johnston | No. 2 Goetting | 8-16-38 | Cypress | .... | 1,599 | .. | 420 |
| | | | **Lake Centralia** | | | | |
| Texas Co. | No. 1 Canull | 8- 2-38 | Benoist | 1,687 | 1,734 | .. | 389 |
| Texas Co. | No. 1 C. Reed | 8-24-38 | Benoist | 1,657 | 1,698 | .. | 154 |
| Texas Co. | No. 1 Tate | 8-24-38 | Benoist | 1,659 | 1,707 | .. | 391 |
| Texas Co. | No. 1 Williams | 8-30-38 | Benoist | 1,651 | 1,690 | .. | 319 |
| Texas Co. | No. 2 Williams | 8-30-38 | Benoist | 1,643 | 1,682 | .. | 422 |
| Texas Co. | No. 3 Williams | 8-24-38 | Benoist | 1,658 | 1,694 | .. | 600 |
| Mammoth Prod. & Ref. Co. | No. 1 Bachman | 8-24-38 | Benoist | 1,882 | 1,897 | .. | 159 |
| J. D. Lane et al | No. 1 Dempsey | 8-24-38 | Benoist | 1,750 | 1,774 | .. | 1,003 |
| Loper et al | No. 1 McRoberts | 8-30-38 | Benoist | 1,735 | 1,750 | .. | 624 |
| J. G. Wanner | No. 1 Raccoon School | 8- 8-38 | Benoist | 1,719 | 1,743 | .. | 675 |

### Gasoline Plants

There is comparatively little gas associated with the oil production in Illinois and gasoline plants will probably be designed with an eye toward conservation rather than as a direct economic measure. Carter Oil Co. is nearing completion on their repressuring-recycling plant in Section 15-8n-3e, in the Louden field. This plant will handle 2,500,000 feet per day from the well separators, compress it to 200 pounds per square inch, absorb the gasoline from it, and then recompress it to 700 pounds per square inch for input purposes. Gasoline yield is expected to be from 1½ to 3 gallons per 1,000 feet.

Both the Cypress and the Benoist will be repressured and it is expected that the maintenance of the pressure and storing of the gas in the sands together with the lighter and more uniform daily production will not only increase the life of the wells but will increase the ultimate recovery from both pay horizons. Input gas for both the Bethel and Cypress will be through the same well with the sands being separated by a packer in the producing wells. Repressuring will naturally be affected by the porosity of the sands and it probably will be necessary in some cases to restrict the flow from some wells in order to maintain the pressure on other wells. This method of production will be a great help in recovering as much oil as possible from the sands as is evidenced by the success of repressuring operations in the older areas of the state which have been relatively successful in spite of their tardiness.

Repressuring will of necessity have to be carried out on a large scale if the most benefit is to be acquired through it. Operators of large leases will have an advantage in this respect but owners of smaller operations can take advantage of the more modern production methods by unitizing their leases. Pumping wells from 20 to 30 years old are not uncommon on the eastern side of Illinois and there is every indication that wells drilled during the past two years will have a life approaching those figures. If the most benefit is to be gained from this new production, every effort will have to be made to get all recoverable oil from the ground in a conservative and economically sound manner.

IDEAL FOR OIL FIELD SERVICE

● Modern, streamlined transmission units—built and backed by Link-Belt—the leading manufacturer of conveying equipment for more than 60 years.

They're all tried and proved units—used in our own engineering installations under every conceivable kind of service. A complete line . . . . built to meet today's needs.

Industry knows and uses Link-Belt equipment with confidence and assurance of reliability.

LINK-BELT COMPANY

Chicago . Indianapolis . Philadelphia
Dallas . Tulsa . Houston
Los Angeles . New York

7517

LINK-BELT
POWER TRANSMISSION
EQUIPMENT

# Basin to Be Well Supplied With Pipe Line Outlets

By L. G. E. BIGNELL

Most of the major trunk pipe line systems between the Mid-Continent oil fields and eastern terminals pass through Illinois. These lines have made it possible for many of the newly discovered oil fields in the Illinois basin area to find outlet for the oil. The older fields along the southeastern boundary of Illinois have long been served by pipe lines most of them terminating in or near Lawrenceville, Ill., which is a large refinery center. Some of the oil from those older fields has been piped north to the vicinity of Chicago and some of it has been moved east to refinery at Latonia, Ky., and even further east to refineries in Pennsylvania and New Jersey.

The pipe lines of the major companies crossing southern Illinois near the new fields are Gulf Pipe Line Co. main system, Illinois Pipe Line Co., Shell Pipe Line Co., between Wood River and Chicago, the Texas-Empire Pipe Line Co. main line with branches from Lawrenceville, Ill., to Whiting, Ind., and the Tide Water Pipe Line Co. from Lawrenceville, Ill., to Bayonne, N. J. In addition to these major pipe lines the Stanolind Pipe Line Co. and the Sinclair Prairie Pipe Line Co. have major lines crossing Illinois to the Whiting, Ind., terminal, but those lines are too far north to be of much service to the new fields.

### Early Outlet

Of the local pipe line companies the most important is the Owensboro Pipe Line Co., a subsidiary of the Standard Oil Co. of Ohio. This company early made connection to wells in the Richland County fields and delivered the oil to the Wabash Pipe Line Co., a subsidiary of the Pure Oil Co. which in turn carried it north to the Illinois Pipe Line Co. main line near Martinville, Ill. From Martinville it is possible to move the oil originating in the Clay City, Olney and Noble fields south to Lawrenceville refinery, to the refinery at Latonia, Ky., or east to the Pittsburgh, Pa., district. The Owensboro Pipe Line Co. also laid lines from the Centralia and Dix pools to the Illinois Pipe Line Co. line near Sandoval field in Marion County and this oil was transported east to Martinville tank farm.

The Beecher City or Louden field in Fayette County is served by the Owensboro Pipe Line Co. which again connects with the Illinois Pipe Line Co. line at a point east of Vandalia. The Oklahoma Pipe Line Co. recently laid a line in the southern part of the Louden field and it also connects with the Illinois Pipe Line Co. system near St. Elmo in Fayette County.

Fairfield and Aden fields in southern Wayne County are served by two short lines terminating at loading rack on the Southern Railway Co. line which is about 10 miles north of the fields.

The Central States Pipe Line Co., a subsidiary of Texas Pipe Line Co., has recently completed a 73-mile 8- and 10-inch diameter pipe line from the Salem or Lake Centralia field in western Marion County to the Indian refinery at Lawrenceville. This line will serve the Salem field in which the Texas Co. has about 30,000 acres under lease and will also pass through the Clay City-Noble oil field area and will be in position to pick up oil there to deliver to the Lawrenceville terminal.

Magnolia Petroleum Co. is reported surveying a line from the Centralia field to East St. Louis.

### Gas Lines

The Panhandle Eastern Pipe Line Co. has a large gas line crossing the state north of the new active district and there are several other local gas systems serving cities and towns in southern Illinois shown upon the Illinois basin map accompanying this issue. The Western United Gas & Electric Co. has a looped system in Jackson, Williamson, Franklin and Perry counties. Effingham, Mattoon, Charleston and Paris, Ill., are all served by the Central Illinois Public Service Co. gas system, which also has another line between Shelbyville and Taylorville in Shelby and Christian counties.

The Illinois Pipe Line Co. system is a subsidiary of Ohio Oil Co. and it was built to serve the numerous fields found about 30 years ago in Clark, Crawford and Lawrence counties in eastern Illinois. Its lines extend across into Indiana and south to Scottsville, Ky. The main line starts at Wood River, opposite St. Louis, Mo., and runs eastward to Negley, Ohio. At Elwood, Ind., there is a branch running south to the refinery at Latonia, Ky., opposite Cincinnati, Ohio.

Because the Illinois fields are east of the Mississippi River where 60 per cent of the petroleum products are consumed they are in a position to secure favorable rates for the crude oil to refineries in the Chicago area, southern Illinois, east St. Louis and Ohio with total throughput capacities of more than 450,000 bbls. daily. In addition to the large refineries there are approximately 50 smaller ones in the areas listed above and in Kentucky and Michigan, all of which can draw upon Illinois basin crude oil.

Caterpillar photo

*Auto patrol on 22-inch ditch for Texas Co. line in southern Illinois, near Boyleston*

# Personnel Directory

## of Producing Companies Operating Properties in the Illinois Basin

### A

**Adams Corners Oil Co., Allendale, Ill.**

Mack Leighty, *Supt.;* James Tracy Price, *Sec.* and *Mgr.;* L. C. David, Lawrenceville, Ill., A. L. Pratt, Murphysboro, Ill., Mordecai Brown, Terre Haute, Ind., *Mgrs.*

**Adams Oil & Gas Co., 2305 Esperson Bldg., Houston, Tex.**

C. A. Wiggins, *Pres.;* George S. Buchanan, *V. P.;* George I. McFerron, *V. P.;* Harry S. May, *Sec.* and *Treas.;* J. M. McMillan, Jr., *Head Land Dept.;* F. W. Freeborn, Jr., *Prod. Supt.*

Illinois Management, 217 New Fowler Bldg., Centralia, Ill.

C. J. Hass, *Prod. Supt. Illinois Dist.;* W. T. Buck, *Asst. Supt.;* Donald F. Parker, *Material Man;* J. D. Hicks, *Production Foreman;* A. V. Foster, *Construction Foreman.*

**Aetna Oil Service, Inc., 1202 S. Third St., Louisville, Ky.**

W. R. Abbott, 1202 S. Third St., Louisville, Ky., *Pres.;* A. A. Spearin, Box 564, Owensboro, Ky., *Field Supt.*

**Alford, Jule, and Others, 623 S. Elliott, Olney, Ill.**

**Algona Oil Co., Hoffman Bldg., Owensboro, Ky.**

**Allen, F. H., Flora, Ill.**

*Producer and Drilling Contractor.*

**Allied Oil Co. of Illinois, St. Elmo, Ill.**

A. R. Matthews, L. B. Stableford, N. H. Mason, *Supts.;* W. H. Rice, Jr., *Mgr.*

**Amerada Petroleum Corp., Centralia, Ill.**

W. B. Sinclair, *Geologist.*

**American Oil Development, Robinson, Ill.**

**Andrews, T. L. & P. C., and others, Lawrenceville, Ill.**

**Apex Drilling Co., 201 N. Lafayette St., Newton, Ill.**

C. R. Obermeyer, *Pres.* and *Gen. Mgr.;* M. D. Obermeyer, Peoria, Ill., *Vice. Pres.;* D. A. Obermeyer, Peoria, Ill., *Sec.* and *Treas.;* C. A. Obermeyer, Jacksonville, Ill., *Field Supt.;* J. B. Kent, St. Louis, Mo., *Supt. Land Dept.;* Frank Holt, *Supt. Pipe Line;* A. H. Irwin, Flat Rock, Ill., *Drilling Supt.*

**Arab Petroleum Corp., U. S. Grant Hotel, Mattoon, Ill.**

R. F. Garland.

**Arkansas Fuel Oil Co., R.F.D. No. 2, Robinson, Ill.**

C. W. Hughes, P. O. Box 1734, Shreveport, La., *Gen. Supt.;* C. H. Stout, P. O. Box 1734, Shreveport, La., *Asst. Supt.;* Carl Witschy, *Prod. Foreman.*

### B

**Babcock, J. P., Oil Co., St. Elmo, Ill.**

L. D. Hopper, *Supt.;* Walter Fishburn, Paris, Ill., *Farm Boss.*

**Barclay, F. C., 234 S. Elm St., Centralia, Ill.**

**Barnsdall Oil Co., Tulsa, Okla.**

Olin W. Jones, *Dist. Mgr. Land Dept. in Mattoon, Ill., office;* Garrett Bolyard, *Geologist in Mattoon, Ill., office;* D. A. Ross, *Dist. Mgr. Land Dept., Masonic Bldg., Owensboro, Ky.*

**Bartelso Oil & Gas Co., Bartelso, Ill.**

**Basin Well Servicing Co., Centralia and Salem, Ill.**

Evan E. Davis (Centralia), *Owner;* J. C. Hawkins (Salem), *Supt.*

**Becca Oil Trust, St. Francisville, Ill.**

John H. Allen, Farmersburg, Ind., *Pres.;* E. J. Chapple, Boonville, Ind., *V. P.;* C. F. Bolton, Vincennes, Ind., *Sec.;* G. H. Currie, *Treas.*

**Bell Brothers, Robinson, Ill.**

William Bell, *Gen. Mgr.*, J. M. Bell, *Supt.;* K. C. Bell, *Mgr. Land Dept.;* C. E. Hippensteel, *Office Mgr.;* George Leedy, Annapolis, Ill., Alvin Cunningham, Route 7, Casey, Ill., Virgil Cunningham, Route 7, Flat Rock, Ill., *Foremen.*

**Bell Oil & Gas Co., Vandalia, Ill. Sales Offices at Centralia, Ill.**

M. L. Freese, *V. P.;* Arthur J. Finston, *Land Dept.*

**Bement Oil Co., 629 Ohio St., Terre Haute, Ind.**

**Benedum & Trees, Mount Vernon, Ill.**

**Big Four Oil & Gas Co., Bridgeport, Ill.**

**Birk City Oil Co., Box 564, Owensboro, Ky.**

W. R. Abbott, *Pres.;* E. F. Combs, 219 Main St., Evansville, Ind., *Treas.*

**Blackstock, Harry, Drilling Contractor and Independent Producer, Salem, Ill.**

**Blackwell Oil & Gas Co., The, Box 911, Cushing, Okla.**

R. C. Jones, *Pres.;* Mrs. Alma M. Blank, *V. P.;* Mrs. Jennie Mullendore, Cleveland, Okla., *Treas.;* A. B. Imel, *Sec.;* H. H. Arters, *Gen. Supt.;* C. T. Stout, *Land Man.*

**Blankenship, G. H., Box 501, Centralia, Ill.**

W. E. Walter, *Prod. Supt.*

**Blosser, C. B., 654 N. Walnut, Centralia, Ill.**

**Bond County Gas Co., 311 West Main, Greenville, Ill.**

F. T. Rowland, *Pres.* and *Mgr.;* W. Bircher, *Supt.*

**Bond, J. B., & Gailey, 116 Walnut St., Centralia, Ill.**

**Bonnie Oil & Gas Co., Inc., 219 S. Fourth St., Springfield, Ill.**

H. U. Bailey, Princeton, Ill., *Pres.;* H. L. Williamson, *Chm. of Bd.*

**Bowden, J. A. & R. B. Sandifur, 211 Cedar St., Centralia, Ill.**

**Braden, James L., Independent Producer, 137 S. Pine St., Centralia, Ill.**

**Bradford Oil Corp., Robinson, Ill.**

**Brenneman & MacDonell, 922 Lima Trust Bldg., Lima, Ohio.**

A. D. MacDonell, *Agt.;* Ed Perfect, Oblong, Ill., *Supt.*

**Bridwell Oil Co., Klohr Bldg., Mattoon, Ill.**

Harvey Whitaker, J. P. Davidson, George Shutzbaugh.

**Broadus, J. J., Individual Operator, Centralia, Ill.**

Boyd Evans, *Supt.;* J. Raymonde Brinker, *Auditor.*

**Buell, Inc., care of J. Garfield Buell, Emerson Hotel, Mount Vernon, Ill.**

J. Garfield Buell, *Pres.;* D. H. Moffat, *Sec.* and *Treas.*

### C

**Carter Oil Co., Eastern Division, Mattoon, Ill.**

W. A. Watkins, *Div. Mgr.;* Ralph Damp., *Asst. Div. Mgr. in Charge of Drlg. and Prod.;* Robert M. Payne, *Head Land Mgr.;* Nelson Ruth, *Asst. Land Mgr.;* M. W. Fuller, *Div. Ch. Geologist;* Raymond D. Sloan, *Asst. Div. Geologist;* Walter H. Davidson, *Div. Ch. Attorney;* Cliff Savage, *Ch. Scout;* Ellis Stallard, *Asst. Ch. Scout;* R. J. Sullivan, *Div. Ch. Engr.;* Carl Herrington, *Asst. Div. Ch. Engr.;* M. L. Kinnan, *Pur. Agt.;* W. E. Griffin, *Ch. Clerk;* G. M. Tubbs, *Asst. Ch. Clerk;* F. W. Bruner, Fred Graham, C. A. Dillard, *Dist. Prod. Supts.* Rex Dawson, *On Sick Leave.*

**Carter Oil Co., The, 115 E. Fourth St., Owensboro, Ky.**

Charles Dillard, *Prod. Supt.;* W. Keith Miller, *Prod.-Geological;* C. F. Filson, *Land Supt.;* A. M. Sullivan, *Scouting Supt.*

**Cavanagh, J. W., Independent Producer, Room 6, Smith Bldg., Centralia, Ill.**

**Central Crude Co., 515 W. Broadway, Centralia, Ill.**

**Centralia Coal Co., Box 386, Centralia, Ill.**

**Centralia Refining Co., Inc., 600 W. Seventh St., Centralia, Ill.**

A. F. Grohe, *Pres.;* W. H. Husmann, *V. P.;* R. G. Matthews, *Sec., Treas.* and *Gen. Mgr.;* Jack Stribling, *Supt.;* Charles Mintz, care of Apex Oil Co., St. Louis, Mo., *Sales Agt.*

**Cities Service Oil Co., 703 Masonic Bldg., Bartlesville, Okla.**

At: Box 195, Mattoon, Ill.: R. E. Brigham, *Land Man;* B. S. Ridgeway, *Geologist;* J. L. Fosness, *Scout;* Miss Marian Arvedson, *Stenographer.*

**Clay City Pipe Line Co., Main Office, Seventeenth Floor Midland Bldg., Cleveland, Ohio. Branch: Mount Vernon, Ill.**

W. T. Holliday, Cleveland, Ohio, *Pres.;* A. M. Maxwell, Cleveland, Ohio, *V. P.;* W. J. Semple, Cleveland, Ohio, *Treas.;* F. H. Kelly, Cleveland, Ohio, *Sec.;* G. J. Hylkema, Cleveland, Ohio, *Asst. Sec.;* J. F. Wilson, Mount Vernon, Ill., O. L. Brown, Cleveland, Ohio, Mack S. Brown, Owensboro, Ky., *Asst. Treas.;* J. F. Wilson, Mount Vernon, Ill., *Gen. Mgr.*

**Coast Producers, Inc., The, 117½ S. Tenth St., Mount Vernon, Ill.**

L. L. Record, *Pres.;* R. E. Benoist, *V. P.;* E. N. Record, *Sec.;* Maxine Moreton, *Asst. Sec.*

**Commercial Oil & Gas Co., Greenville, Ill.**

**Conrey & Griffin Drilling Co., 410 S. Pine St., Centralia, Ill.**

Max Conrey, *Mgr.;* C. A. Griffin, Patoka, Ill., *Field Supt.;* Thurman Conrey, *Land Dept.*

**Continental Oil Co., P. O. Box 478, Centralia, Ill.**

E. J. Bergundthal, *Dist. Landman;* F. E. Melott, *Dist. Geologist.*

**Creek Drilling Co., Inc., Owensboro, Ky.**

W. W. Damron, *Pres.;* Julius C. Miller, *Sec.* and *Mgr.;* Jess Perkins, *Supt.*

**Cumberland Production Co., Metropolitan Bldg., Centralia, Ill.**

A. B. Potter, *Pres.;* Graham Powell, *Supt.;* Clyde Greenlee, *Asst. Supt.*

**Curtis, W. L., Co., Bridgeport, Ill.**

# *Drilling and Pumping at a Profit with*

# LINK-BELT

## ★ *Silverlink* ROLLER CHAIN

The popularity of LINK-BELT Silverlink Roller Chain grows on as one satisfied user after another passes on the good word about its dependable performance, regardless of the type of service to which it is put. Silverlink Roller Chain is in action . . . at a profit to the owner . . . wherever there's oil.

Above is a Kansas drilling job using double-width Silverlink on a modern vertical engine hook-up driving a mud pump; at right, a Pea-huller unit, driven by single-width Silverlink, pumping deep Oklahoma production. In each case the operator reports smooth, profitable chain performance . . . the kind of report that's customary on Silverlink Roller Chain whatever the job or wherever it may be.

Silverlink Roller Chain is made in ⅜" to 2½" pitch, in single and multiple strand types, with a complete range of sprocket wheels and attachments. Complete drives...chains and sprocket wheels... from ¼ to 225 H.P., in speed ratios of 1 to 1 up to 8 to 1, are stocked by distributors nationally.

Send for catalog. Link-Belt Company, Indianapolis, Philadelphia, Chicago, New York, Los Angeles, Dallas, Houston, or Tulsa. *Distributors in All fields.* 7086-A

★ T. M. REG. U. S. PAT. OFF.

*Silverlink*

**Cypress Oil & Gas Co., Inc., South First & Morgan Sts., Shelbyville, Ill.**

C. H. Boswell, *Pres.;* L. R. Tallman, *V. P.;* J. A. Clark, Pana, Ill., *Treas.;* Thomas E. Dickey, Vernon, Ill., *Sec.*

D

**Daily Crude Oil Co., U. S. Grant Hotel, Mattoon, Ill.**

**Dameron Oil Co., Fairfield, Ill.**

**Danville Drillers, Inc., 19 E. North St., Danville, Ill.**

**Daphfine Oil Corp., 2201 Prairie St., Mattoon, Ill.**

**Darby, H. C., Co., Box 213, Princeton, Ind.**

**Daugherty, Clarence, 506 Frederica, Owensboro, Ky.**

**Deep Rock Oil Corp. (H. N. Greis, Trustee, Atlas Life Bldg., Tulsa, Okla.), Mattoon, Ill.**

William C. Adams, U. S. Grant Hotel; Harry E. Layman, Robert L. Parker, Collis Chandler, Charles Chappel.

**Denver Producing & Refining Co., Box 643, Oklahoma City, Okla.**

**Deutsch-Viaknisikki Co., 19 E. North St., Danville, Ill.**

G. A. Oexner, *Production Mgr.*

**Devonian Oil Co., Box 358, Salem, Ill.**

George D. Foster, *Head of Land Dept.;* E. R. Brockway, W. Earle Shamblin, *Geologists;* Joe S. Miller, *Land Dept.;* Jack Tomer, *Draftsman;* Robert W. Butler, *Sec.*

**Dewitt, J. A., 204 N. Locust St., Centralia, Ill.**

**Dilley & Miller, Petersburg, Ind.**

**Dinsmoor Oil Co., Robinson, Ill.**

**Diver, Joseph E., and Others, Bridgeport, Ill.**

**Doran, Paul, Fehrn Bldg., Vandalia, Ill.**

Paul Doran, *Owner;* C. R. Lewis, *Office Mgr.;* T. S. Doran, *Drlg. Supt.;* J. H. Jarrell, *Prod. Supt.*

E

**Eason Oil Co., 306 First National Bank Bldg., Mount Vernon, Ill.**

T. W. Eason, *Mgr.;* R. P. Kimzey, *Scout* and *Land Dept.;* Julian W. Smith, *Geological Dept.*

**Eason, T. T., & Co., Drilling Contractors, 306 First National Bank Bldg., Mount Vernon, Ill.**

W. H. Taft, *Mgr.*

**Egyptian Producing & Refining Co., 802 Brookside, Centralia, Ill.**

Perry T. Fess, *Pres.;* John Peters, *V. P.* and *Plant Supt.;* L. L. Urquhart, *Sec.* and *Treas.;* V. J. Nolan, *Sales Mgr.;* R. D. McElhany, *Asst. Sales Mgr.;* S. P. Grady, *Head Chemist;* Russell Huffman, *Plant Foreman.*

**Ellis & Blowers, 112 E. Third St., Owensboro, Ky.**

James C. Ellis, R. H. Blowers. Box 381, Centralia, Ill. Hotel Frances, Pana, Ill.

**Ellmitch Oil Co., 507½ Frederica, Owensboro, Ky.**

**English Princeton Oil Co., English, Ind.**

F

**Fairhope Oil Co., 104½ S. Poplar, Centralia, Ill.**

**Farmers State Bank, Lawrenceville, Ill.**

**Fayette Pipe Line Co., St. Elmo, Ill.**

**Fields, Bert, 326 S. Sycamore St., Centralia, Ill.**

Lee Hays, *Div. Mgr.* and *Engr.;* G. A. McCallister, *Foreman.*

**Fitzpatrick & Hayes, Box 280, Centralia, Ill.**

G. R. Hayes and J. W. Fitzpatrick, *Partners.*

**Fordsville Gathering Line, Inc., Damron Bldg., P. O. Box 512, Owensboro, Ky.**

A. M. Maxwell, *Pres.;* W. E. Hupp, *V. P.;* W. J. Semple, *Treas.;* J. F. Wilson, *Sec.;* S. A. Swensrud, *Asst. Sec.*

**Fortney Oil Co., Mount Pleasant, Mich.**

**Fritzie Oil Co., Box 193, Centralia, Ill.**

**Frontier Oil Co., 515 S. Poplar, Centralia, Ill.**

Jay G. Wanner, Rock Springs, Wyo., *Pres.;* George H. Kilpatrick, *V. P.* and *Field Mgr.;* Ray Phebus, *Gen. Mgr.* and *Sec.;* Clayton Phebus, *Treas.* and *Ch. Geologist.*

G

**Geiger Oil Co., Washington, Ind.**

**Geneseo Producers, Box 384, Centralia, Ill.**

**Gib. Van Oil Co., 710 Central Union Bank Bldg., Evansville, Ind.**

**Goldschmidt, E. J., Breese, Ill.**

H. J. Schrage, *Field Supt.;* C. Leonard Snell, Mark Twain Hotel, St. Louis, Mo., *Pur. Agt.*

**Gough & Co., Damron Bldg., Owensboro, Ky.**

Kenneth Gough and H. C. Hume, *Operators.*

**Gould, E. M., & Son, Metropolitan Bldg., Centralia, Ill.**

E. M. Gould, *Owner;* E. L. Gould, *Supt.;* Charles A. Mammon, *Bookkeeper.*

**Griffity Mineral Co., 207 W. Fourth, Owensboro, Ky.**

**Gross, George H., Bartelso, Ill.**

**Gross, Leo H., Bartelso, Ill.**

*Operator.*

**Gudder, Ullus, 1100 N. Poplar, Centralia, Ill.**

**Gulf Refining Co., 628 Illinois Bldg., Indianapolis, Ind. (Eastern Production Division).**

B. F. Bridges, *Gen. Agent.;* Fred R. Smith, *Supt. of Prod.;* B. F. Hake, *Chief Geologist;* John C. Young, Mattoon, Ill., *Zone Agt.;* John R. Parker, Owensboro, Ky., *Land Man;* J. Warren Smith, Owensboro Ky., *Scout-Leaser;* C. L. Alberts, Indianapolis, Ind.

H

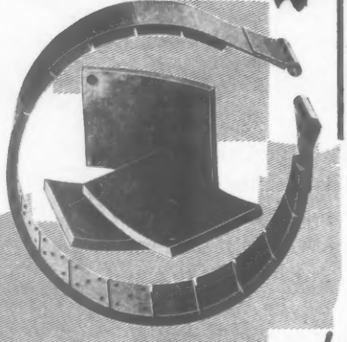
**Hager, Dorsey, Centralia, Ill.**

**Hanna, Heidrick & Case, Langenfeld Hotel, Centralia, Ill.**


Where there's OIL-

you'll find

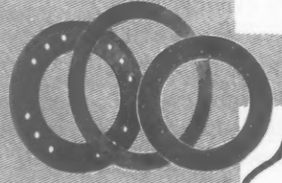
GATKE BRAKE LINING and FRICTIONS



and wherever GATKE materials are used, you will find INCREASED Production.

GATKE Brake Linings and Frictions give your equipment FAST and STEADY performance, with—

- Smooth pickup — smooth feed-off regardless of Load—Heat or Weather
- Safety.
- Fewer adjustments and replacements.
- Sure control—Even action.
- Lower costs—Greater efficiency.



Oil Field men specify GATKE on their equipment—

it's *UNEQUALLED—ECONOMICAL.*

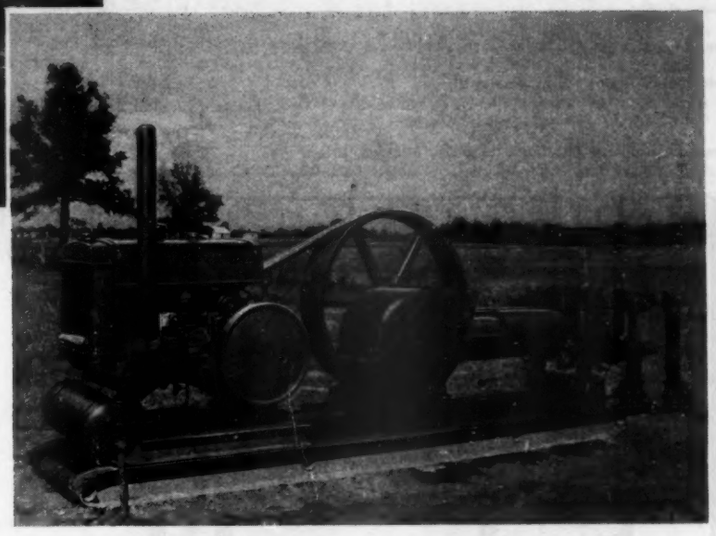
Correctly made for every Draw Works—Pulling Winch—Clutch—Sand Reel or Production Hoist.

Any Brake or Friction Problems? WRITE US
Solving them is OUR Business

GATKE CORPORATION

228 N. La Salle St. Gatke QUALITY Chicago, Ill.

*Type 4GR Rotary Pump, gasoline engine drive . . . capacities up to 356 barrels per hour.*



*Type KLS Power Pump, enclosed crankcase, driven by gasoline engine with Worthington Multi-V-Drive . . . on oil gathering service.*

# *In the Illinois Basin for*

## GATHERING, TRANSFER and OTHER OIL FIELD SERVICES

# *Worthington Pumps Predominate!*

**POWER PUMPS**

| Type | Stroke, in. | Size Pistons, in. | Pressure range, lb. per sq. in. | Capacity range, barrels per hour |
|---|---|---|---|---|
| KMS | 10 | 3 to 7 | 1000 to 350 | 87 to 526 |
| KKS | 10 | 3 to 7 | 1000 to 235 | 87 to 526 |
| KLS | 10 | 2½ to 5 | 1000 to 250 | 57 to 264 |
| KHS | 6 | 2½ to 4 | 800 to 300 | 53.5 to 131 |

**ROTARY PUMPS**

| Size | Maximum speed, r.p.m. | Maximum pressure, lb. per sq. in. | Displacement barrels per hr. at max. speed |
|---|---|---|---|
| 1½-GR | 1160 | 300 | 55.7 |
| 2-GR | 1160 | 300 | 87.2 |
| 2½-GR | 1160 | 300 | 134.2 |
| 3-GR | 870 | 300 | 213 |
| 4-GR | 720 | 300 | 356 |
| 5-GR | 590 | 300 | 640 |
| 6-GR | 490 | 300 | 1142 |
| 8-GR | 400 | 300 | 1685 |
| 10-GR | 400 | 300 | 2375 |
| 12-GR | 320 | 300 | 3720 |
| 16-GR | 240 | 300 | 5860 |

**In the booming oil fields of Illinois, where dependability of pumping equipment is a prime factor, it is significant that Worthington pumps outnumber those of any other maker.**

**Worthington Type GR Rotaries, furnished in eleven sizes, and Worthington Power Pumps, of four distinct types, are well known for their high efficiency and long life . . . not only in Illinois, but in every oil field in the country, and in many foreign fields.**

● *Stock shipments from works and oil-field stores*

**WORTHINGTON PUMP AND MACHINERY CORPORATION**

*General Offices* **HARRISON, NEW JERSEY** - *Offices and Representatives in Principal Cities*

**WORTHINGTON**

PP 8-2

**Harry Haze, Inc., Tribune Tower, Chicago, Ill.**

**Hausmann & Brown, Vandalia, Ill.**
A. J. Hausmann and Ray Brown, *Partnership.*

**Hawkins & Copeland, Richardson Bldg., Centralia, Ill.**
Dallas E. Hawkins and J. L. Copeland, *Partnership.*

**Hawkins, Glenn D., Byers Hotel, Mattoon, Ill.**
*Consulting Geologist.*

**Hawley Oil Corp., Tenth & State, East St. Louis, Ill.**
Wallace H. Wright, *Pres.;* M. Hill, *V. P.;* C. C. Kane, *Sec.* and *Treas.;* G. N. Hawley, *Field Supt.*

**Hayes, W. R., Du Quoin, Ill.**
*Oil Operator.*

**Heenan & Coe Oil Co., Mattoon, Ill.**

**Helmerich & Payne, Inc., Salem, Ill.**
Herman Aweas, *Drlg. Supt.;* D. R. Ridgeway; L. C. Clark, Jr., *Field Clerk-Field Office.*

**Henshaw Brothers, 305 Lumpkin Bldg., Mattoon, Ill.**
Paul A. Henshaw, 2400 Western Ave., Mattoon, Ill.

**Highland Oil & Gas Co., Oblong, Ill.**
G. C. Curlis, *Atty.*

**Huber, Eli G., Oil & Gas Co., 710 Central Union Bank Bldg., Evansville, Ind.**
Eli G. Huber, *Pres.;* Curtis E. Huber, *V. P.*

**Hume & Steele, 218 Damron Bldg., Owensboro, Ky.**
H. C. Hume and L. M. Steele, *Partnership.*

**Hupp, W. E. Main Office: P. O. Box 524, Lexington, Ky. Branch Office: P. O. Box 616, Owensboro, Ky.**
K. Z. Wilking, Owensboro, Ky., *Supt.;* Albert McIntosh, Owensboro, *Field Foreman;* Claud Salyer, Owensboro, Ky., Joe Wray, Owensboro, Ky., R. M. Couch, Route No. 2, Reynolds Station, Ky., *Foremen.*

## I

**Illinois Canadian Corp., care of H. S. Williams, Messrs. Provine & Williams, Woolworth Bldg., Taylorville, Ill.**
A. B. Stodart, Suite 1602, 330 Bay St., Toronto, Canada, *Pres.* and *Director;* J. N. Cannon, Toronto, Canada. *Sec.;* D. A. Macintosh, Toronto, Canada, *Director;* R. W. Hart, Suite 705, 350 Bay St., Toronto Canada, *Director;* Norman Garland, P. O. Box 252, Bowling Green, Ky., *Field Supt.*

**Illinois-Iowa Power Co., 109 E. Broadway, Centralia, Ill.**

**Illinois-National Oil & Gas Co., 117½ S. Tenth St., Mount Vernon, Ill.**
L. L. Benoist, *Pres.;* George L. Hausmann, *V. P.,* E. N. Record, *Sec.;* Maxine Moreton, *Asst. Sec.*

**Illinois Pipe Line Co., Sandoval, Ill.**

**Illinois Producers, Ltd., 311½ E. Broadway, Centralia, Ill.**

**Indian Refining Co., Lawrenceville, Ill.**

**Indian Territory Illuminating Oil Co., Demaree Bldg., Mattoon, Ill.**
J. A. Murphy, *Dist. Land Man;* J. W. Glahn, *Land Man;* C. M. Clark, *Dist. Geologist;* Max Engle, *Scout.*

**Indiana Southwestern Gas Corp., 423 La Plante Bldg., Vincennes, Ind.**
R. D. Brown, 352 S. Illinois St., Indianapolis, Ind., *Pres.;* R. E. Eckel, *V. P.;* D. L. Rinehart, 352 S. Illinois St., Indianapolis, Ind., *Sec.* and *Treas.;* H. F. Klopp.

**Inland Oil & Gas Co., 406 Frederica, Owensboro, Ky.**

**International Oil & Gas Co., 444 Washington Trust Bldg., Washington, Pa.**
W. J. Murphy, Newark, Ohio, *Pres.;* Otis Foss, Bridgeport, Ill., *Supt. of Southern Illinois.*

**Interstate Oil & Gas Co., 406 Frederica, Owensboro, Ky.**

**Iroquois Oil & Gas Co., 602 N. Walnut St., Olney, Ill.**
Lowell Sparling, *Pres.;* Robert M. Smith, *V. P.* and *Prod. Supt.;* R. Bruce Doty, *Sec.* and *Treas.;* Theodore J. Cassady, *Office Mgr.;* G. D. Ramsey, *Field Supt.;* James F. Haffey, *Scout.*

## J

**Jarvis Brothers & Marcel, St. Elmo, Ill.**
S. D. Jarvis, E. P. Jarvis, A. Marcel, *Executives;* S. D. Jarvis, *Gen. Mgr.;* T. A. Masters, *Supt. of Prod.;* Hugh Stevens, *Asst. Supt. of Prod.;* Lawrence Masters, *Farm Boss;* Howard Holmes, *Office Mgr.*

**Jones, J. C., Independent Producer, 222 N. Walnut, Centralia, Ill.**

**Johnston, E. C., Box 1101, Longview, Tex.**
E. C. Johnston, Longview, Tex., *Owner;* F. C. Barclay, Centralia, Ill., *Mgr.;* V. M. Harness, Centralia, Ill., *Supt.*

**Johnston & Stickler, 1640 Triplett St., Owensboro, Ky.**
C. Taber Johnston.

**Johnston & Young, 1640 Triplett St., Owensboro, Ky.**
C. Taber Johnston, *Partner.* J. S. Young, Jr., Lawrenceville, Ill., *Partner.*

## K

**Kencal Co., Owensboro, Ky.**
Walter E. Daly, *Pres.*

**Kenrow Co., 406 Frederica, Owensboro, Ky.**

**Kentucky Producing Corp., 406 Frederica, Owensboro, Ky.**

**Kesl & Fox, 212½ E. Broadway, Centralia, Ill.**

**Kessler Oil & Gas Co., 1621 Lafayette St., Mattoon, Ill.**
J. M. Kessler, *Exec. V. P.;* J. S. Harris, *Treas.* and *Gen. Supt.;* William L. Clark, *Ch. Geologist;* J. J. Lawry, 1501 Petroleum Bldg., Oklahoma City, *Prod. Supt.*

**Kewanee Oil Co., Robinson, Ill.**
T. B. Steele; Walter H. Ritterbusch, U. S. Grant Hotel, Mattoon, Ill.

**King Tut Oil Co., 8 West Washington, Sullivan, Ind.**
Milo Mitchell, Linton, Ind., *Pres.;* Fred F. Bays, *Sec.* and *Treas.*

**Kingwood Oil Co., Box 449, Effingham, Ill.**
J. T. King, *Pres.;* L. S. Sloane, *Sec.-Treas.;* C. H. Bergquist, *First V. P.* and *Gen. Supt.;* M. F. Graham, *Second V. P.;* Asa Lee, *Supt. Prod.* and *Drlg.;* C. T. Schell, *Farm Boss;* La. A. Schumacher, *Atty.;* Ben J. Taylor, *Land Man;* Clarence Brehm, Dr. R. R. Priddy, Clifton Bell, Carl Maxey, Ed Siberts, W. O. Allen, Jr., Ed McMann, Don R. Johnston, *Geologists;* R. Davis, *Diesel Mechanic.*

## L

**Lacey, W. F., 1002 E. Second St., Centralia, Ill.**

**Lain Oil & Gas Co., 131 N. Locust, Centralia, Ill.**


# TANKS

## Built at

# Salem, Illinois

## For Better Service to Basin Operators

WELDED STOCK TANKS
FLOW TANKS
SEPARATORS
OIL HEATERS
and TREATERS

WATER TANKS
TRUCK TANKS
A.S.M.E. CODE
BUTANE TANKS
MALONEY BOLTED
TANKS

*Complete Field Erection and Hook-Up Service*

*Bars, Angles, Sheets and Plates*
*Carried in Stock*

A. W. (Tony) CROWLEY, Mgr.
OFFICE PHONE 2701 P. O. BOX 210 NIGHT PHONE 142
BROADWAY AT M. & I. TRACKS
SALEM, ILLINOIS

## McNAMAR BOILER & TANK MFG. CO.

TULSA, OKLAHOMA

**Lambert, Burr, Box 504, Centralia, Ill.**
S. G. Walker, Fred Arrington, W. E. Jacks.

**Lamberton, W. J., Estate, Box 1311, Tulsa, Okla.**
John S. Robinson, Robinson, Ill., *Supt.*

**Landreth Production Co., U. S. Grant Hotel, Mattoon, Ill.**

**Lange, C. E., 115½ N. Locust St., Centralia, Ill.**

**Leach Brothers Oil & Gas Co., Golden Gate, Ill.**
Frank P. Leach.

**Lebow, Simon, 1135 Hunt Bldg., Tulsa, Okla.**
W. J. Wigginton, 420-422 Masonic Bldg., Owensboro, Ky., *Atty.*

**Lee Petroleum Co., Bloomington, Ind.**

**Leiper Oil Co., 406 Frederica, Owensboro, Ky.**

**Leonard Drilling Co., Olney, Ill.**

**Lewis, M. J., 2005 Crawford St., Houston, Tex.**
Formerly Lewis & Bassinger, Illinois office at 136 North Beech Street, Centralia, now discontinued.

**Lexcastle Oil & Gas Corp., Greencastle, Ind.**

**Liberty Oil & Gas Co., Savings Bank Bldg., Warren, Pa.**
H. C. Eba, *Pres.* and *Mgr.;* William J. Wagner, Robinson, Ill., Route 2, *Supt.*

**Lilly, Louis, 206 N. Hickory, Centralia, Ill.**

**Lincoln, R. A., 25 Metropolitan Bldg., Centralia, Ill.**

**Lingafelter & Williams, Drilling Contractors, Box 421, Mattoon, Ill.**
F. C. Lingafelter, 1217 S. 18th St., *Drlg. Contr.* and *Oil Producer;* Burr F. Williams, 1709 Olive St., *Drlg. Contr.* and *Oil Producer;* L. E. Williams, 1309 S. 18th St., *Drlg. Contr.* and *Oil Producer;* H. M. Wiliams, 220 North Bluff St., Wichita, Kans., *Drlg. Contr.* and *Oil Producer.*

**Liner Oil of Louisiana, P. O. Box 258, Centralia, Ill.**
E. R. Liner, *In Charge of Operations.*

**Lion Oil Co., 406 Frederica, Owensboro, Ky.**

**Livermore Oil & Gas Co., 406 Frederica, Owensboro, Ky.**

**Locke, N. S., 242½ E. Broadway, Centralia, Ill.**

**Loenig, E. J., & Son, Box 204, Centralia, Ill.**

## Mc

**McBride, W. C., Inc., Kensler Bldg., Lawrenceville, Ill.; Box 331, Centralia, Ill.**
J. B. Crisman, Centralia office, *Acting Mgr.;* M. R. Burgoon, Centralia office, *Prod. Supt.;* C. A. Mulholland, Centralia office, *Engr.;* E. J. Fye, Lawrenceville office, *Foreman;* Clyde Tucker, Lawrenceville office, *Foreman;* E. W. Ellsworth, Centralia office, *Geologist;* F. T. Jensen, Centralia office, *Geologist.*

**McColpin, J. W., and Others, Breen Oil Co., Robinson, Ill.**

**McGuigan, O. J., Robinson, Ill.**

## M

**Mabee, J. E., Bovaird Supply Bldg., St. Elmo, Ill.**
Guy Mabee, *Supt.*

**Magnolia Petroleum Co., P. O. Box 128, Mattoon, Ill.**
John T. Cumbie, W. B. Jackson, John T. Jones, Cecil Lanier, O. F. Beaty, Ferris Heffington, *Dist. Land Men;* W. K. Brewster, *Scout;* Dwight Koch, *Clerk;* Verner Jones, Howard W. Handley, H. A. Sellin, F. E. Wimbish, *Dist. Geologists.*

**Mahan, McCarty & Besse, Inc., Hunt Bldg., Tulsa, Okla.**
Otto Lambden, Box 120, Flora, Ill., *Supt.;* Travers Mahan, Star Hotel, Flora, Ill., *Supt.*

**Mahutska Oil Co., Robinson, Ill.**
Alex U. McCandless, *Pres.* and *Gen. Mgr.;* Leonard G. Niehoff, *V. P.* and *Treas.;* John A. Byerly, Pittsburgh, Pa., *Sec.;* Eulala L. Shepherd, *Asst. Sec.* and *Asst. Treas.;* Frank B. Barnes, *Gen. Supt.;* S. H. Correll, Fred Boyd, Oblong, Ill., *Foremen.*

**Major Oil Co., 316 Carey Bldg., Owensboro, Ky.**
Walter Sargent, *Pres.;* S. J. Maddin, Vendome Hotel, Evansville, Ind., *Sec.* and *Treas.;* James Stevens, *Supt.*

**Mammoth Producing & Refining Corp., Olney, Ill.**
Samuel S. Garfield, *Mgr.;* A. G. Post (Pete), *Supt.,* John H. Adamson, *Geologist.*

**Marion Oil Corp., Salem, Ill.**

**Marsh Oil & Gas Co., St. Francisville, Ill.**

**Mayhugh and Others, Allendale, Ill.**
Cecil Keneipp, *Mgr.;* H. A. Fox; G. D. Johnston, Bridgeport, Ill.; D. H. Price; G. R. Lithulanel; Glenn Breen, Washington, D. C.; Mrs. C. M. Mayhugh, Parkersburg, W. Va.

**Mecca Oil Co., The, 1640 Triplett St., Owensboro, Ky.**
C. Taber Johnston, *Pres.* J. A. Ford, *Sec.* and *Gen. Mgr.*

**Medley Bros. & Co., 1640 Triplett St., Owensboro, Ky.**
Ben F. Medley, *Pres.;* George Medley, *Sec.* and *Treas.*

**Menhall, James W., & Co., Fifth St. and I.C.R.R., Centralia, Ill.**

**Midwest Dairy Co., DuQuoin, Ill.**

**Midwest Development Corp., 406 La Plante Bldg., Vincennes, Ind.**
J. E. Bauer, *Pres.;* L. E. Grey, *Supt. Drlg.* and *Prod.,* R. Steinhorst, *Land Dept.;* R. A. Bauer, *Office Mgr.*

**Midwest Petroleum Co., 106 E. Broadway, Centralia, Ill.**
S. M. Jennings, *Pres.;* John W. Sander, *Gen. Mgr.*

**Miller & Shiarella, Contractors, Owensboro, Ky.**
J. C. Miller and N. W. Shiarella; J. C. Morgan, *Drlg. Supt.*

**Minerva Oil Co., St. Elmo, Ill.**
J. H. Steinmesch, *V. P.* and *Mgr.;* L. C. Masters, *Supt.*

**Morrison, B. C., Pittenger Hotel, Centralia, Ill.**

**Mount Carmel Oil Co., 424 Market St., Mount Carmel, Ill.**
Charles Oldendorf, *Mgr.;* Hal Young, Lawrenceville, Ill., *Supt.;* Robert Benham, Allendale, Ill., *Foreman.*

**Murphy & Hawkins, P. O. Box 162, Centralia, Ill.**
Joe L. Murphy and Dallas E. Hawkins, *Partners.*

**Murphy Oil Co. of Pennsylvania, Manhattan Bldg., Fourth & Walnut St., Philadelphia, Pa.**
E. C. Abernathy, Bridgeport, Ill., *Supt.*


OIL FINANCING

OUR EXPERIENCE IS AT YOUR SERVICE

DIRECTORS
B. F. BARNETT, Vice President
J. P. BYRD, JR., Vice President
M. M. DOAN, Oil Investments
F. L. DUNN, Executive Vice President
A. L. FARMER, Real Estate
H. H. GREIS, Oil Producer
JOHN D. MAYO, Mayo's, Incorporated
R. OTIS McCLINTOCK, President
F. B. PARRIOTT, Oil Producer
W. G. SKELLY, President, Skelly Oil Company
ELMO THOMPSON, Vice President

THE FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA
MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

1895 — We Bank on *OIL* — 1938

## N

**National Consumers Oil Co., 942 Wabash Ave., Terre Haute, Ind.**

**New York Petroleum Co., Box 568, Parkersburg, W. Va.**
H. L. Stout, *V. P.* and *Gen. Mgr.*; A. S. Boyer, 1716 Latrobe St., Parkersburg, W. Va., *Drlg. Foreman*; E. S. Needs, Oblong, Ill., *Lease Foreman*; John L. Davis, Cairo, W. Va.

**Niagara Oil Corp., 78 Main St., Bradford, Pa.**
R. K. McCullough, Route 2, Oblong, Ill., H. W. McCullough, Shelburn, Ind., *Supts.*

**Noble, Claude E., P. O. Box 237, Princeton, Ind.**
Clorce Arnold, R.R. No. 5, Petersburg, Ind.

**Nolan Oil & Gas Co., Box 558, Chanute, Kans.**

**Nollem Oil & Gas Corp., 210 E. Park Way, N. S. Pittsburgh, Pa.**
C. F. Kimmell, 306 Carey Bldg., Owensboro, Ky., *Gen. Supt., Kentucky, Indiana, and Illinois*; M. T. Parks, 515 Broadway, Mount Vernon, Ill., *Lease* and *Land Man*; R. S. Thrasher, 306 Carey Bldg., Owensboro, Ky., *Asst. Supt. in charge of drlg. operations.*

## O

**Oexner, Hancock & Day, Inc., 19 E. North St., Danville, Ill.**
G. A. Oexner, *Sec.* and *Treas.*

**Ohio Oil Co., The, Box 149, Marshall, Ill.**
C. C. Carroll, *Mgr.*; J. F. Reglin, Bridgeport, Ill., *Supt.*; John Denton, Bridgeport, Ill., *Asst. Supt.*; C. J. Hares, *Geologist*; R. G. Kurtz, Flora, Ill., *Geologist*; H. B. Mahin, Noble, Ill., *Foreman*; H. N. Lewis, 124 E. Fourth St. Flora, Ill., *Foreman of Drilling*; J. R. Thorpe, Robinson, Ill., *Supt.*

**Oil Securities, Inc., Centralia, Ill.**
Evan E. Davis, *Pres.*

**Olson Drilling Co., Tulsa, Okla.**
J. T. Speak, Olney, Ill., *Tool Pusher*; S. A. Olson, Clay City, Ill., *Prod. Supt.*

**Ostrom, J. R., Box 268, Centralia, Ill.**
J. L. Ostrom, L. E. Ostrom, *Land Dept.*; A. L. Ostrom, *Supt. Prod. Dept.*; Gus Friend, *Foreman.*

**Owensboro Corp., Owensboro, Ky.**

**Owensboro Oil Exchange, 406 Frederica, Owensboro, Ky.**

**Owensboro Pipe Line Co., Mount Vernon, Ill.**

## P

**Pace & German, Drilling and Production, 102½ E. Broadway, Centralia, Ill.**
H. A. Pace. Jacob German.

**Panther Creek Oil Co., 315 W. Fifth St., Owensboro, Ky.**

**Papoose Oil Co., Evans Hotel, Vandalia, Ill.**
D. E. Horrigan, *V. P.* and *Pur. Agt.*; Joe E. Daly, *Asst. Supt.*

**Parrish, F. C., 204 N. Locust, Centralia, Ill.**

**Parshall-Graham Oil Co., Olney, Ill.**
D. S. Parshall, *Pres.*; Harold Williams, *V. P.*; Ray L. Graham, *Sec.* and *Treas.*

**Pease, James, & Co., 2345 S. La Salle St., Chicago, Ill.**
John I. Healy, *Exec.*; Ralph Sears, Route 4, Robinson, Ill.

**Pemberton Oil & Gas Co., 229 E. Main St., Olney, Ill.**
H. B. Piper, *Pres.*; A. J. Wharf, Route 2, Vincennes, Ind., *Sec.*; E. A. Powers, 328 S. Elliott St., Olney, Ill., *Treas.*; Jess Farlow, Bridgeport, Ill., *Field Supt.*

**Penn-Indiana Oil Co., 406 Frederica, Owensboro, Ky.**

**Petre & McCracken, 115 N. Locust St., Centralia, Ill.**
S. W. Petre and J. T. McCracken, *Partnership.*

**Phillips Petroleum Co., 402 Lumpkin Bldg., Mattoon, Ill.**
John Alban, *Div. Land Man*; J. H. Girdler, *Div. Geologist*; M. E. Miesse, Owensboro, Ky., *Land Man.*

**Pittsburg Oil & Gas Co., Casey, Ill.**

**Porterville Oil Co., Robinson, Ill.**
R. P. Matheny, Yale, Ill., *Pres.* S. G. Jessup, *Gen. Mgr.*

**Power Oil & Refining Co., Centralia, Ill.**
William H. McKain, *Gen. Mgr.*; C. K. Porter, *Refinery Supt.*; O. A. Bigelow, *Pipe Line Supt.*

**Pray Drilling Co. (Central Crude Co.), Brownstown, Ill.**
Max Pray, *Pres.*; Thomas J. Hynes, *Drlg. Supt.*; F. J. McCormack, *Prod.* and *Pipe Line Supt.*; Ray Hemphill, *Pipe Line Foreman*; Riley Tift, *Pur. Agt.*

**Producer's Pipe Line Co., 112 E. Third St., Owensboro, Ky.**
James C. Ellis, *Pres.*; J. Fred Miles, Louisville, Ky., *V. P.*; Carl A. Morrison, *Mgr.*; Luke Coombs, *Supt.*; Homer Thrawley, *Supt.*

**Pugh, John, Oil & Gas Well Co., Centralia, Ill.**
John Pugh, *Pres.*; Paul Pugh; C. F. Barker; Tom Smith; W. R. Turner.

**Pure Oil Co., The, (Illinois Producing Division), Olney, Ill.**
R. W. McIlvain, Jr., Box 311, *Div. Mgr.*; C. M. Harden, Box 311, *Prod. Supt.*; Bart De Laat, Box 311, *Prod. Supt.*; C. R. Groff, Box 311, *Office Mgr.*; H. L. Patterson, Box 188, Clay City, Ill., *Dist. Supt., Clay City District*; L. L. Haines, Box 307, Noble, Ill., *Dist. Sup., Noble District.*

**Pyramid Petroleum Corp., 328 S. Morgan St., Olney, Ill.**
S. L. Reinhardt, Chicago Ill., *Pres.*; Leo V. Horton, Olney, Ill., *Ch. Geol.*; Warren C. Wright, Majestic Hotel, Carmi, Ill., *Mgr. Land Dept.*; C. R. Reglin 308 S. Morgan St., Olney, Ill., *Prod. Supt.*

## R

**Raitman, Sam B., 215 E. Main St., Olney, Ill.**
Sam B. Raitman, *Gen. Mgr.*; M. E. Grigg, *Office Mgr.*; J. Lawn, *Field Supt.*

**Ramsey, G. D., Pittenger Hotel, Centralia, Ill.**

**Roy Oil Co., 330 Leafland Ave., Centralia, Ill.**

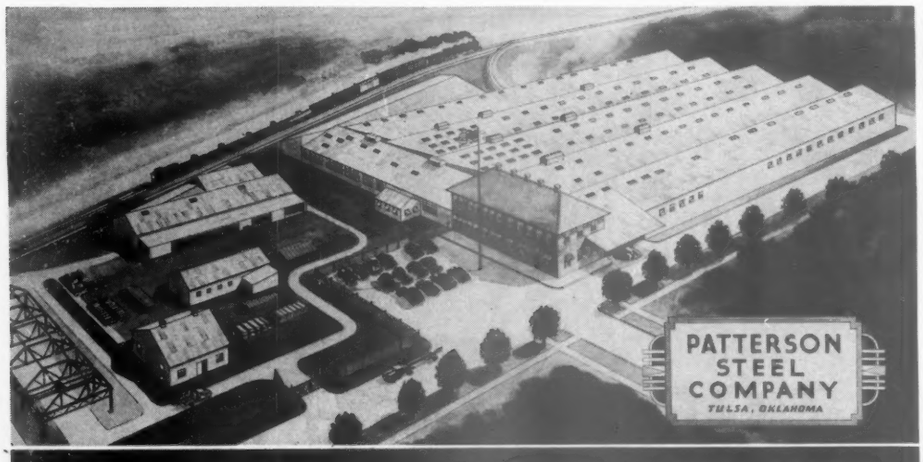
**Red Hill Oil Co., 227 St. Ann, Owensboro, Ky.**

**Redgrave, Bertram, Pittenger Hotel, Centralia, Ill.**
H. B. Dillman, *Supt.*

**Redwine, Nash, 303 S. Cherry, Centralia, Ill.**
*Independent producer.*

**Redwing & Baker, Pittenger Hotel, Centralia, Ill.**

**Reynolds, J. D., Co., Centralia, Ill.**
J. A. Matthews, *Supt.*; Denver Adams, *Prod. Supt.*


# WE SPECIALIZE ON STEEL BUILDINGS FOR THE OIL INDUSTRY

PATTERSON Gasoline Plant Building

PATTERSON Engine House

PATTERSON Refinery Building

For twenty years the Patterson Steel Company has specialized in the design and manufacture of sectional steel buildings for the Oil Industry.

Today, PATTERSON Sectional Steel Buildings offer: (1) Adaptability to every need—as buildings are constructed from standardized units, and thus can be furnished in any height, width or length in multiples of two feet. (2) Sturdy construction throughout. (3) Quick erection — all parts being jig-fitted interchangeable units, factory assembled. (4) Practically 100% salvage.

Write for details about PATTERSON Buildings and our Engineering Service, which includes designs and estimates without obligation.

*We also maintain the largest stocks of Steel Warehouse Materials south of St. Louis.*

PATTERSON STEEL COMPANY
P. O. Box 2620 Tulsa, Okla.

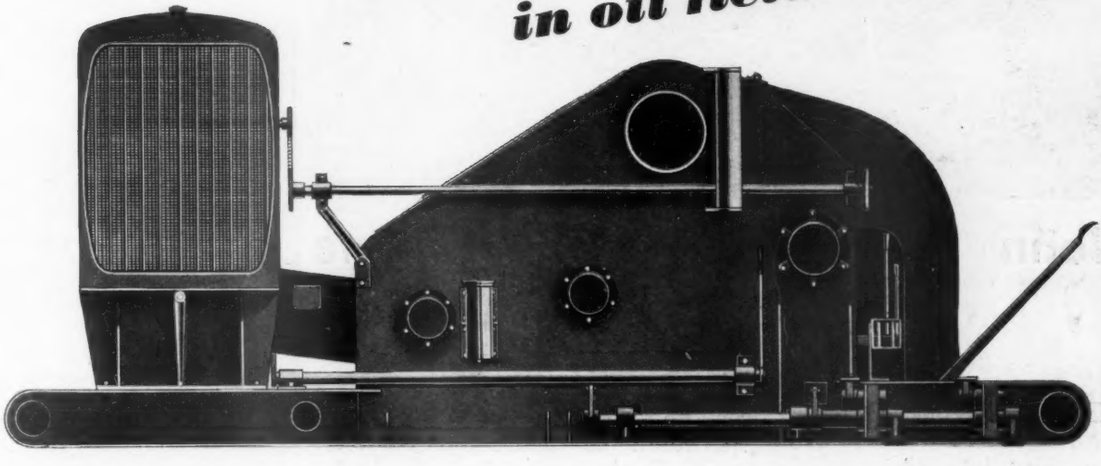
PATTERSON
SECTIONAL STEEL
BUILDINGS

# Portable Rig

# MODEL 35

## BUILT TO MEET DRILLING CONDITIONS IN THE ILLINOIS BASIN

***Is winning recognition in oil fields everywhere!***



**CAPACITY:** 2500 feet, 4½" 16.6-lb. drill stem using one 100 HP engine and four lines. Two engines may be compounded for greater depths.

**CLUTCHES:** Heavy duty friction type used on both rotary and drum shafts.

**ENCLOSURE:** Totally enclosed to protect and insure long life to all working parts.

**LUBRICATION:** Force feed lubrication to all working parts bearings and chains.

**BEARINGS:** Roller bearings throughout.

**CHAINS AND SPROCKETS:** Roller chains and cut steel sprockets.

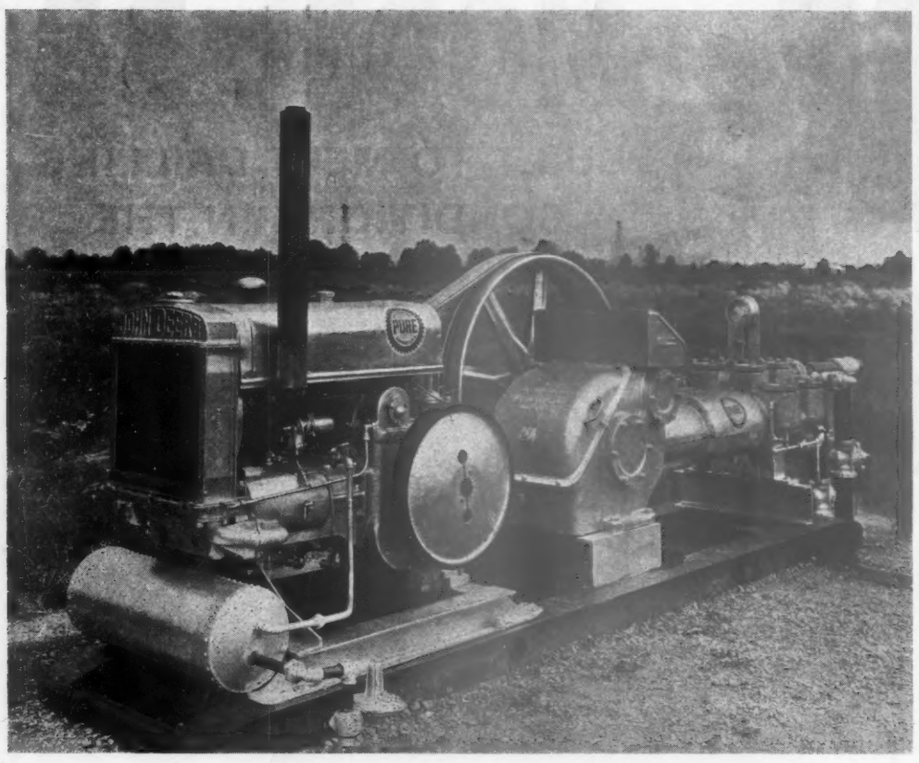
**PORTABILITY:** Conforms to all highway requirements in respect to dimensions and weight.

**PRIME MOVER:** Rig available in either single or double engine drive.

Showing slush pump unit for use with single engine drive draw works.

*Ask for Bulletin 35.*

# *After 5,500* Hours of Work




## . . . John Deere *Type "W"* Engine *Shows* NO WEAR

AFTER two and one-half years —after over 5,500 hours of work—the first John Deere Type "W" Stationary Engine purchased by the Pure Transportation Company (a division of the Pure Oil Company) showed no wear and was in perfect condition. The letter below, written by J. F. Miller, General Superintendent for the Pure Transportation Company at Mt. Pleasant, Michigan, illustrates the satisfaction that John Deere Engines give in oil field work. He writes . . .

". . . We purchased our first John Deere Engine about 2½ years ago and ran it under a 32 H.P. load approximately six to eight hours per day. We then tore the engine down and *found everything in perfect shape.* The crankshaft and bearings showed no wear, and except for grinding valves, the engine was in as good shape as when we bought it. *At present we have 18 John Deere Engines in the field.* Some have worked under recommended load 24 hours a day over a period of 10 months. They have been very satisfactory . . . require little mechanical repairs . . . and we are perfectly satisfied with their operation."

Since the letter above was written, the Pure Oil Company has purchased 60 additional John Deere Engines to make a total of 78 now in the field—proof of the simplicity, dependability, economy, long life, and all-around operating satisfaction of John Deere Type "W" Engine power.

If you are a user of stationary power on installations that require from 15 to 35 H.P., investigate John Deere two-cylinder stationary engines. You'll like their simplicity, easy upkeep, long and satisfactory service, and their ability to burn distillate, natural gas, furnace oil, and other low-cost fuels with outstanding success, efficiency, and safety.

Write, today, for further information and for complete descriptive literature. John Deere, Moline, Ill.

**JOHN DEERE STATIONARY ENGINES**

***More Power . . . For a Longer Time . . . At Lower Cost***


**Roberts, Alson, English, Ind.**

**Roberts Brothers, Box 1322, Shreveport, La.**
L. E. Roberts, A. D. Roberts, M. E. Roberts.

**Roberts Brothers, P. O. Box 3, Centralia, Ill.**

**Robinson, Edward, 104½ N. Locust, Centralia, Ill.**

**Rock Hill Oil Co., Mount Vernon, Ill.**
J. S. Sanford, *Supt.*

**Rockwood & Bliss, 122 N. Locust, Centralia, Ill.**

**Root Penman Co., Robinson, Ill.**

**Rossi, Paul, Independent Producer and Drilling Contractor, Box 158, Salem, Ill.**

**Rourke, Moore, Lincoln & Ruddick, 122 N. Locust, Centralia, Ill.**

S

**Santa Fe Petroleum Corp., Carlyle, Ill.**
W. E. Steinmann, *Pres.-Director;* Aloys Schiermann, *V. P.-Director;* Glenn A. Sherman, *Sec.-Director;* Roland Plotts, *Treas.-Director;* L. H. Jonas, Centralia, Ill., *Director;* Ben Ober, Centralia, Ill., *Director;* Paul L. Fischer, Carlyle, Ill., *Director;* Henry C. McGaffigan, Carlyle, Ill., *Executive-Director;* Christ Steinmann, Carlyle, Ill., *Director;* Thomas R. Kerwin, Carlyle, Ill., *Director.*

**Sappington, J. W., 204 N. Locust, Centralia, Ill.**

**Schlesberg, S. B., Centralia, Ill.**

**Scott, Charles W., Oil Corp., 710½ Ohio St., Terre Haute, Ind.**

**Seaboard Oil Co. of Delaware, Box 241, Mattoon National Bank Bldg., Mattoon, Ill.**
Frank Bryan, *Agt.*

**Shell Petroleum Corp., Box 476, Centralia, Ill.**
Ernest G. Robinson, *Mgr.;* Arnold C. Dahl, *Prod. Supt.;* Ernest Obering, *Chief Geologist;* F. W. Oudt, *Chief Geophysicist;* John Asbury, *Chief Scout;* Hiram Norcross, *Land Agt.;* Ed Shakely, *Chief Exploitation;* L. E. Orr, *Pur. Agt.;* C. L. Jones, *Prod. Supt.*

**Shepard, C. A., Tenth & Bond Sts.**
Charles Lish, *Prod. Mgr.*

**Simmel, Louis, 138 S. Locust, Centralia, Ill.**

**Sinclair Prairie Oil Co., Centralia, Ill.**
Bert Lloyd.

**Siosi Co., The, 405 Sycamore Bldg., Terre Haute, Ind.**
Charles H. Osmond, 2008 Fort Worth National Bank Bldg., Fort Worth, Tex., *Pres.* and *Gen. Mgr.;* Don F. Kerr, *Treas.;* A. F. Lager, Terre Haute, Ind., *Prod. Supt.*

**Skelly Oil Co., 1712½ Broadway, Mattoon, Ill.**
C. C. Hutchens, *Dist. Landman;* W. W. Keeler, *Dist. Geologist;* W. W. Simpson, *Scout;* W. Farrar, *Geologist;* Russell Cooper, *Geologist;* Lloyd Leuschan, *Engr.*

**Snowden & McSweeney Co., 503 E. Olive St., Bridgeport, Ill.**
A. E. Baldwin, *Gen. Supt.;* G. E. Baldwin, *Dist. Foreman, Illinois and Kentucky;* O. C. Craig, H. S. Curts, *Foremen;* J. E. Baldwin, M. E. Gray, *Office Mgrs.;* M. A. Arvin, Owensboro, Ky., *Supt. Kentucky;* G. R. Wesley, Owensboro, Ky., J. C. Powell, Owensboro, Ky., *Geologists;* Cecil Street, Owensboro, Ky., *Foreman;* Francis Martin, Owensboro, Ky., Miss Orlyn Lyle, *Office;* Everett Andrews, Scottsville, Ky., *Foreman.*

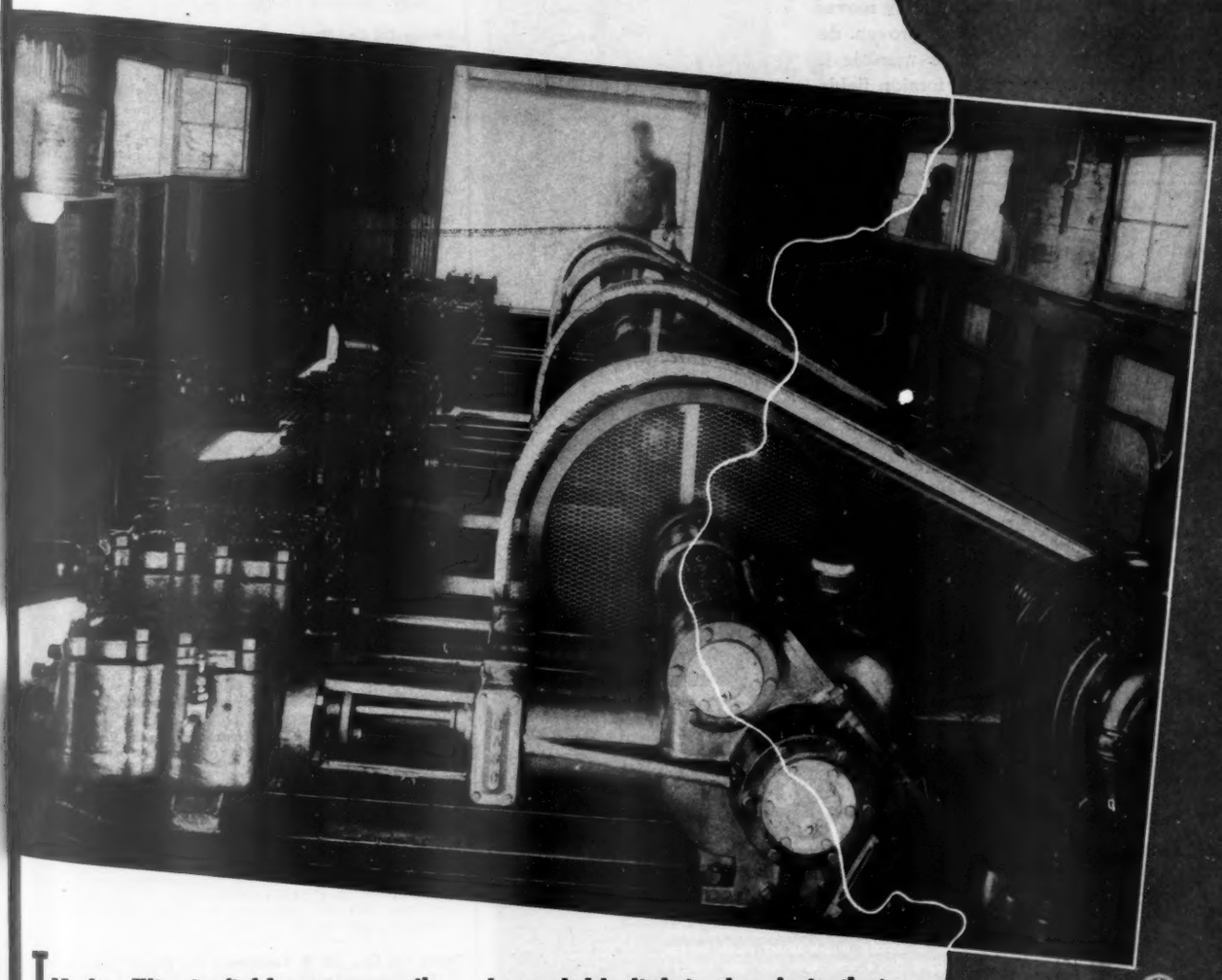
**Sohio Corp. (Formerly Owensboro Corp.), Branches—Mount Vernon, Ill., and Owensboro, Ky. Main Office—Seventeenth Floor Midland Bldg., Cleveland, Ohio.**
W. T. Holliday, *Pres.;* A. M. Maxwell, *V. P.;* J. F. Wilson, Mount Vernon, Ill., *V. P.* and *Gen. Mgr.,* W. J. Semple, *Treas.;* F. H. Kelly, *Sec.;* S. A. Swensrud, *Asst. Sec.;* Mack S. Brown, Owensboro, Ky., *Asst Treas.;* T. E. Lashmet, Owensboro, Ky., *Ch. Accountant.*

**Southwestern Oil & Gas Co., Sandoval, Ill.**

**Stanolind Oil & Gas Co., 1521 Lafayette St., Mattoon, Ill.**
W. C. Imbt, *Dist. Geologist;* L. A. Cook, *Dist. Landman.*

**Stewart, A. J., & Co., 507½ Frederica, Owensboro, Ky.**

# *It's natural to find* GASO PUMPS *in the Illinois field!*



IN the Illinois field, veteran oil men are taking advantage of the accumulated experience gained in all other fields.

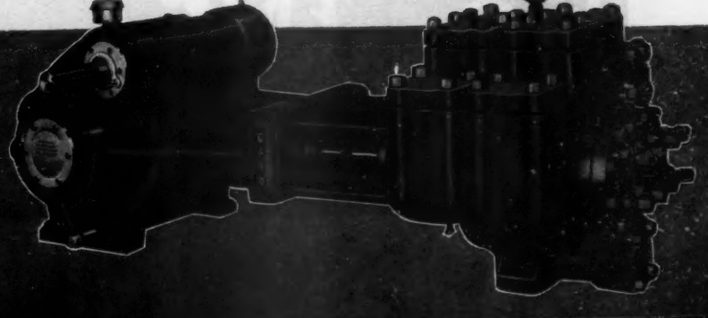
It is logical in such a picture to find GASO PUMPS carrying a he-man share of the pumping burdens.

Shown here is a typical installation—a series of Gaso 1849 Pumps in the Centralia region—a strong, dependable link in the chain that leads from field to refining center.

Gaso is organized for quick, dependable service to Illinois operators. Our new sales and service office is at your command.

**GASO PUMP & BURNER MFG. COMPANY**
902 E. First St., Tulsa, Okla.
Export Office: 149 Broadway, New York
Los Angeles: Service Oil Field Supply Co.
5333 S. Riverside Drive

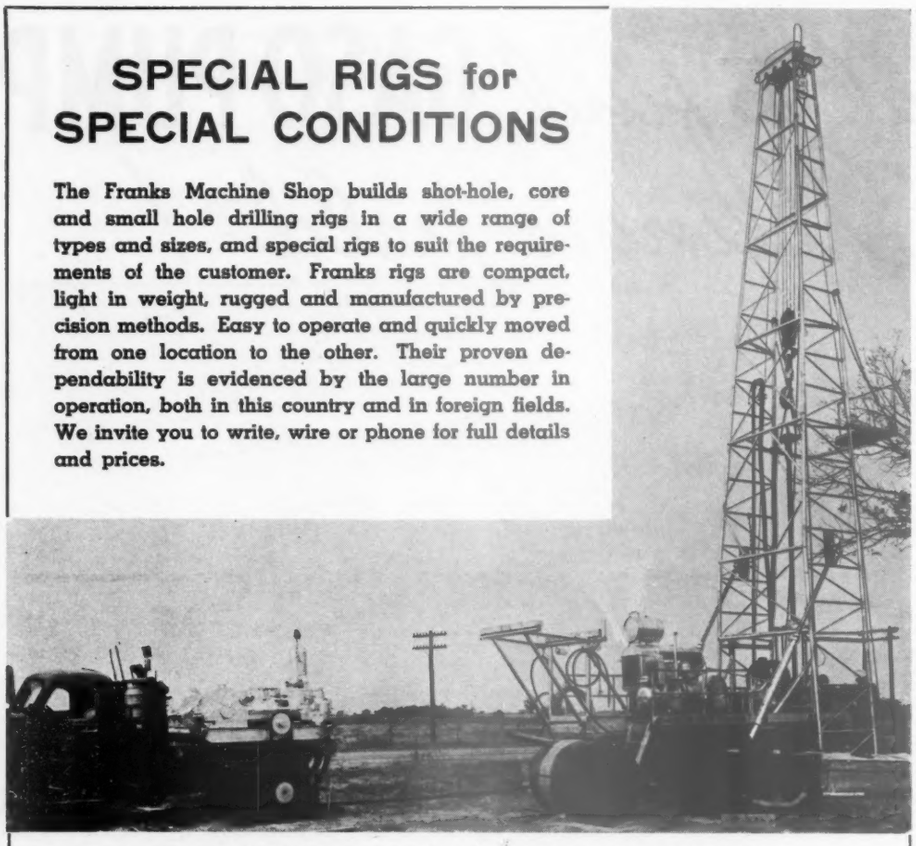
TO PROVIDE ON-THE-SPOT SERVICE TO ILLINOIS OPERATORS
Gaso has opened a sales and service office at Salem— efficiently manned to work with you in the efficient solution of your pumping problems.



GASO PUMPS
for every oil industry need

## SPECIAL RIGS for SPECIAL CONDITIONS

**The Franks Machine Shop builds shot-hole, core and small hole drilling rigs in a wide range of types and sizes, and special rigs to suit the requirements of the customer. Franks rigs are compact, light in weight, rugged and manufactured by precision methods. Easy to operate and quickly moved from one location to the other. Their proven dependability is evidenced by the large number in operation, both in this country and in foreign fields. We invite you to write, wire or phone for full details and prices.**



**FRANKS MACHINE SHOP**

203 E. Main ENID, OKLAHOMA Phone 737-LD 62

GOTT WATER CAN
Made in 1½, 3, 5, and 10 gallon sizes.

**Gotkool**

**WATER CANS & COOLERS**

GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today!

GOTT WATER COOLER
Made in 3, 5, 8, 10, and 20 gallon sizes.

**H. P. GOTT MFG. CO.**

WINFIELD, KANSAS

KEEP PURE DRINKING WATER ALWAYS HANDY

OTIS

**"Don't Kill Your Well" Call OTIS**


**Stroble, Charles, Trustee, Princeton, Ind.**
Charles Strouble and Maurice Burdick (Barr and Harris farm).

**Sun Oil Co., Old National Bank Bldg., Evansville, Ind.**
H. A. W. Myrin, *Gen. Agt.;* C. R. Perkins, *Office Mgr.;* F. C. Ploeger, *Drlg. Supt.;* T. C. Stauffer, *Asst. to Gen. Agt.;* E. J. Reading, *Land Dept.;* E. W. Hard, *Geologist;* S. G. Elder, *Geologist;* M. W. Sherwin, *Paleontologist;* Kirby Smith, *Petroleum Engr.;* George Clapp, Mount Vernon, Ind., *Prod. Foreman;* Harley C. Byrd, Henderson, Ky., *Prod. Foreman.*

**Sunflower Oil & Gas Co., 209½ W. Fourth St., Owensboro, Ky.**
George S. Engle, *Pres.* and *Gen. Mgr.;* J. E. Patton, *Engr.;* Seymour Sheaks, *Foreman.*

**Sunray Oil Co., Mattoon, Ill.**
C. M. Nye, *Landman;* J. H. Walker, *Geologist.*

**Superior Oil Co., The, Demaree Bldg., Mattoon, Ill.**
K. L. Gow, *Dist. Geologist;* J. B. Hines, *Dist. Land Man;* Floyd C. Smith, *Geologist;* N. W. Engle, *Scout;* A. B. Barrow, *Petroleum Engr.;* Frank Severn, *Drlg. Supt.;* Dallas B. Sherman, *Land Man.*

T

**Taylor Drilling Co., 123 N. Walnut St., Centralia, Ill.**
Ike W. Taylor, *Pres.;* Jacob E. Taylor, *Sec.* and *Treas.;* Joe Mayoral, *V. P.;* James K. Long, Jr., *Drlg. Supt.;* Raymond Gates, N. D. Derby, John McCowen, *Tool Pushers;* B. E. Hine, *Diesel Engr.*

**Tatum, Will S., Box 259, Centralia, Ill.**
Will S. Tatum, *Operator;* W. O. Tatum, F. M. Tatum, Hattiesburg, Miss.; H. N. Anderson, *Supt.;* J. C. Parsons, Centralia, Ill., *Prod. Supt.*

**Texas Co., The, (Division Headquarters), Box 2420, Tulsa, Okla.; (District Office), Box 476, Mattoon, Ill.; (District Production Office), Box 369, Mount Vernon, Ill.**
H. N. Pardee, Tulsa, *Div. Mgr.;* M. J. Heald, Tulsa, *Asst. Div. Mgr.;* J. E. Flanagan, Tulsa, *Div. Land Mgr.;* H. H. Arnold, Tulsa, *Div. Chief Geologist;* J. W. Russell, Mattoon, Ill., *Dist. Land Man;* W. C. Kneale, Box 369, Mount Vernon, *Dist. Prod. Supt.;* M. B. Miller, Mattoon, Ill., *Dist. Geologist.*

**Texillo Drilling Co., 116 S. Poplar St., Centralia, Ill.**
J. L. Copeland, *Pres.;* R. C. Sweet, *V. P.;* O. W. Burroughs, *Gen. Mgr.;* Frank Haendiges, *Sec.;* C. W. Gore, *Drlg. Supt.*

**Thayer, O. A., Sullivan, Ind.**

**Thompson, Earl W., 122 N. Logust, Centralia, Ill.**

**Three Sands Oil Co., 617 Merchants National Bank Bldg., Terre Haute, Ind.**

**Tide Water Associated Oil Co., 1521 Charleston Ave., Mattoon, Ill.**
Lloyd N. Nash, *Land Dept.;* Paul F. Osborne, *Geologist;* C. H. Fidler, *Lease Man;* W. H. Cordell, *Asst. Geologist;* E. T. Benson, *Asst. Geologist;* T. C. Patten, *Scout;* Miss Wilma Borland, *Office Sec.;* W. S. Corwin, Box 243, Robinson, Ill., *Prod. Mgr.;* R. L. Coe, Box 243, Robinson, Ill., *Prod. Supt.;* Robert Wilson, Box 243, Robinson, Ill., *Pet. Engr.*

**Tomco Oil Co., 120 N. Fourteenth St., Mount Vernon, Ill.**
Jess Tomberlin, *Pres.;* William Tomberlin, *V. P.;* F. S. Tomberlin, *Sec.*

**Toomey, J. D., Estate, Robinson, Ill.**
V. Littlejohn, *Trustee;* C. M. Bryan, *Supt.*

**Trenton Rock Oil & Gas Co., R.R. No. 3, Casey, Ill.**
H. A. Werts, *Pres.;* F. E. Stohr, *V. P.;* B. F. Miller, *Sec.* and *Treas.;* Al Stohr, *Asst. Sec.* H. A. Werts, *Supt.* and *Gen. Mgr.*

**Trans-American Oil Co., St. Elmo, Ill.**

**Transwestern Oil Co., 1526 Broadway, Mattoon, Ill.**
Don O. Chapell, *Geologist* and *Dist. Mgr.;* L. J. Handy, *Land Dept.;* H. S. Thomas, *Paleontologist,* Jack R. Deardorff, *Scout;* Betty Love Jones, *Steno.* Wayne Seeley, *Office Asst.*

U

**United Carbon Co. and United Producing Co., Inc., Union Bldg., Charleston, W. Va.**

**United Oil Corp., 42 Drexel Ave., Indianapolis, Ind. Farmer's National Bank Bldg., Princeton, Ind.**
W. H. Baugh, Terre Haute, Ind., *Pres.,* L. C. Nicholson, Indianapolis, Ind., *Vice Pres.;* B. C. Van Hook, Vincennes, Ind., *Chm. of Bd.;* J. O. Rosebaum, 42 Drexel Ave., Indianapolis, Ind., *Sec.* and *Treas.;* W. W. Rogers, R. R. No. 1, Princeton, Ind., *Field Supt.;* Gardner Blaize, R. R. No. 2 Glezen, Ind., *Field Foreman.*

**Universal-Demayo, 333 Third St., Greenville, Ill.**

## V

**Vermilion Oil Producing Corp., 19 E. North St., Danville, Ill.**
G. A. Oexner, *Sec.* and *Treas.*

**Vickers, Oswald D., 406 Frederica, Owensboro, Ky.**

**Vicion Oil Co., Inc., 315½ W. Fifth St., Owensboro, Ky.**
Julius C. Miller, *Gen. Mgr.;* Jess Perkins, *Prod. Supt.*

**Vincennes Oil & Gas Co., Sullivan, Ind.**
E. M. Kerlin, *Pres.; R. C. Kerlin, V. P.;* and *Gen. Mgr.;* Homer Means, Route 1, Bridgeport, Ill.

## W

**Warner-Caldwell Oil Co., Second National Bank Bldg., Titusville, Pa.**

**Weinert, H. H., Inc., Fairfield, Ill.**
H. H. Weinert and Jack Chevigny.

**Western Kentucky Petroleum Corp., Owensboro, Ky.**
W. T. Holliday, *Pres.;* A. M. Maxwell, *V. P.;* W. J. Semple, *Treas.;* F. H. Kelly, *Sec.;* G. J. Hylkema, *Asst. Sec.;* H. C. Patch, *Comptroller;* J. F. Wilson, *Operating Mgr.*

**Whisenant & Trenchard, Box 462, Mattoon, Ill.**
J. B. Whisenant, Mattoon, *Supt.* and *Gen. Mgr.;* C. F. McComas, St. Elmo, Ill., *Drlg. Supt.*

**Whitaker Oil Co., Tulsa, Okla.**
Loy Wilson, *Gen. Supt.;* A. M. Wimberly, Brownstown, Ill., J. L. Work, Monmouth, Ill., Carl Bills, Keokuk, Iowa, *Supts.;* J. B. Work, Brownstown, Ill., J. C. Minyard, Monmouth, Ill., F. L. Byers, Monmouth, Ill., W. A. Merida, Keokuk, Iowa, R. V. Coyle, Keokuk, Iowa, *Asst. Supts.*

**Whitlock, Charles C., 1000 S. Seventh St., Terre Haute, Ind.; St. Elmo, Ill.; Fairfield, Ill.**

**Wicklund, J. V., Development Co., Shultz Bldg., Olney, Ill.**
C. F. Bertram, *Supt.;* W. W. Hagan, *Geologist;* S W. Lawrence, *Field Foreman;* J. M. Lawson, *Office Mgr.*

**Winona Oil Co. of Delaware, 1521 Charleston Ave., Mattoon, Ill.**
Kirol R. Holm, *V. P.*

**Wirt Franklin Petroleum Corp., P. O. Box 471, Mattoon, Ill.**
Linn M. Farish, *Geological Dept.;* Frank M. Head, *Land Dept.;* Earl George, *Draftsman;* Mrs. Frances Deardorff, *Stenographer.*

**Wiser Oil Co., Lexington, Ky.**

## Z

**Zephyr Drilling Co.**
S. C. Canary, Philtower Bldg., Tulsa, Okla.; Mac McClintock, Centralia, Ill.; Sam Barker, Centralia, Ill., *Tool Pusher.*

## FOR BOVAIRD IN ILLINOIS

Here are the managers of three Bovaird Supply Co. stores in Illinois. V. P. McAnally, at Vandalia, was formerly manager of Bovaird's store

*McANALLY* *BARTHELD* *REYNOLDS*

in Russell, Kans. He has been with the company 12 years. Before assuming management of the Salem store L. W. Bartheld for two years was vice president of the Pangburn Tool Co., Odessa, Tex., and before that he was manager of Bovaird's store in Ada, Okla. C. E. Reynolds, manager of the St. Elmo store, was formerly field salesman for Bovaird in the Chase, Kans., area.


Ford — Lincoln Zephyr — Mercury

Cars — Trucks — Tractors

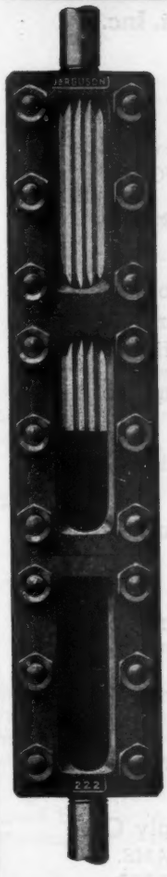
Make This Your Automotive Headquarters

**Satterlee Motor Company**

Centralia, Illnois



**JERGUSON**



BE SURE
that the name
JERGUSON
is on your Gages

Jerguson Reflex and Transparent (thru vision) Gages have been noted for over 30 years for accuracy and dependability.

Reflex Gages indicate the liquid level, no matter what the color of the liquid. Ideal for tanks, towers, stills, etc., because the—

Empty space shows
WHITE
Liquid level appears
BLACK

Jerguson Transparent (thru vision) Gages for showing color and density of liquids, are also noted for their accuracy and dependence.

*Jerguson Gages are best By every real test*

Catalog on request.

JERGUSON GAGE & VALVE CO.
85 FELLSWAY
SOMERVILLE, MASS.



*for SAFETY and ECONOMY*

**COFFING SAFETY-PULL HOISTS and BOOMERS**

Coffing SAFETY-PULL Hoists and Boomers are used for pulling rods to power wells; raising and lowering suction hose; raising, lowering and installing pipe lines; bending pipe; pulling up guy wires, messenger wires and underground cables; pulling motors; straightening frames; booming loads of pipe and all kinds of heavy machinery and equipment; miscellaneous work of all kinds wherever a lift or pull is needed.

Coffing SAFETY-PULL hoists are built in capacities ranging from ¾ to 15 tons and unit weights are from 14 to 150 lbs. SAFETY-PULLS are equipped with special cadmium plated roller chain and all hoists are factory tested at 100% over rated capacity.

*Get in touch with your oil field distributor for 30-day free trial.*

**COFFING HOIST CO.**
DANVILLE, ILLINOIS

*Coffing SAFETY-PULL 1½-ton hoist pulling slack out of well rod.*

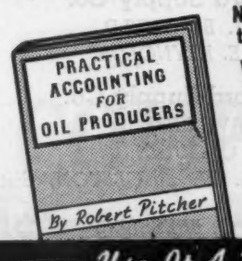

*If you haven't had that FREE list of important oil books, by all means send your request to the Book Department, The Oil and Gas Journal, Tulsa, Oklahoma.*


**MAILING LISTS**
Of The Oil Industry
*Up-to-Date — Guaranteed*
OIL INDUSTRY MAILING LIST CO.
909 Tulsa Loan Bldg. Tulsa, Okla.



*Every Oil Man Needs This Book!*

***New*** **Reference Text Book covering all phases of oil producing accounting.**




Non-technical. Easy to understand . . .

Write for illustrated folder and our Free Examination offer . . .

**MID-WEST Printing Co.**
Publishing Div. 9
Box 766 Tulsa, Okla.

*Use It A Week Before You Decide!*

# Directory of

# Manufacturers, Supply Stores and Service Organizations in the Illinois Basin

**Acme Lumber Co.**
Clay City, Ill.
St. Elmo, Ill.
Salem, Ill.

**Acme Machine Company**
St. Elmo, Ill.

**Alten Foundry & Machine Works**
Salem, Ill.

**American Iron & Machine Works, Co.**
Salem, Ill., *BILL MARTIN.*

**All-Steel Products Mfg. Co.**
Salem, Ill., *HARLEY REECE.*

**American Torpedo Co.**
Centralia, Ill.
St. Elmo, Ill.

**Baker Oil Tools, Inc.**
Mattoon, Ill., *JOHN S. CHICK.*
Centralia, Ill., *BOB GLOVER, district manager.*
Owensboro, Ky., *J. W. (JIM) McCUMMINGS.*

**Baroid Sales Co.**
Vandalia, Ill., *D. D. VARNELL.*
Olney, Ill., *A. A. ROBERTS.*

**Beckman, Inc.**
Salem, Ill., *FRANK DENKER.*

**Black, Sivalls & Bryson, Inc.**
Salem, Ill.
Clay City, Ill.
Olney, Ill.
Owensboro, Ky.

**B. E. Bond Co. (Butane)**
Oden, Ill.
Mount Vernon, Ill.

**Bovaird Supply Co.**
Salem, Ill., *L. W. BARTHELD.*
St. Elmo, Ill., *C. E. REYNOLDS.*

**Bradford Supply Co.**
Clay City, Ill., *DAVE FREE*
St. Elmo, Ill., *C. C. GUINN.*
Robinson, Ill., *L. W. SINGLETON, district manager.*
Centralia, Ill., *R. O. BRESSLER.*

**Brauer Machine & Supply Co.**
Clay City, Ill., *LEO BRAUER.*

**Bridgeport Machine Co.**
Centralia, Ill., *J. E. KING.*
St. Elmo, Ill., *J. D. LEWIS.*
Owensboro, Ky., *HARPER BARRETT.*

**Brown-Walters, Inc.**
St. Elmo, Ill.
Centralia, Ill.
Clay City, Ill.

**Buda Engine Sales & Service Co.**
Salem, Ill., *R. V. OSTERHOUT.*

**Burdette Oxygen Co.**
Clay City, Ill.

**Burt Tank, Separator and Oil Treating Corp.**
Centralia, Ill., *J. A. MATTHEWS.*

**Cannon Machine Co.**
Lawrenceville, Ill.

**Caterpillar Tractor Co.**
Olney, Ill.

**Centralia Pipe & Supply Co.**
Centralia, Ill.
St. Elmo, Ill.

**Chicago Pneumatic Tool Co.**
Clay City, Ill., *WALTER APPLING.*

**Collett Bros.**
Owensboro, Ky.

**Compressed Industrial Gases**
Clay City, Ill.

**Continental Supply Co.**
Centralia, Ill., *R. E. WILLIAMS.*
Owensboro, Ky., *W. R. COOPER.*
Noble, Ill., *L. C. COMBS.*
St. Elmo, Ill., *J. B. SPARKS.*

**Fred E. Cooper**
Olney, Ill., *GLEN L. WIGTON, EARL H. COCHRAN.*

**Core Laboratories, Inc.**
Centralia, Ill., *JOHN H. CAMPBELL.*

**Crane Co.**
Terre Haute, Ind.

**Dowell, Inc.**
Lawrenceville, Ill., *R. S. BONHAM.*
Flora, Ill., *J. C. McCORMICK.*
Owensboro, Ky., *L. A. COURTER.*

**Federal Oil Field Supply**
Clay City, Ill.

**Franklin Tool Co.**
Salem, Ill.

**Frick-Reid Supply Corp.**
Salem, Ill., *A. F. KEATING.*
Clay City, Ill., *H. A. LOVELADY.*
Owensboro, Ky., *H. H. WILCOXEN*
St. Elmo, Ill., *J. K. GUINN.*
Glasgow, Ky., *T. M. BATCHELOR.*

**Gaso Pump & Burner Mfg. Co.**
Salem, Ill., *H. A. WIENECKE, JR., TED DOUGLAS.*

**Gladewater Pipe & Supply Co.**
Centralia, Ill.

**Green Head Bit & Supply Co.**
Salem, Ill.

**General Machine & Tool Co.**
Salem, Ill.

**Guiberson Corp.**
Salem, Ill.

**Halliburton Oil Well Cementing Co.**
Olney, Ill.
Mattoon, Ill.
Salem, Ill.
Centralia, Ill.
Flora, Ill., district office, *R. R. EMERY, Supt.*
Henderson, Ky.
Altamont, Ill.

**Happy Belting Co.**
Salem, Ill., *ROY LINDLEY.*

**Hinderliter Tool Co.**
Clay City, Ill., *MARVIN A. WESTON.*

**Hooks Bros. Machine Works**
St. Elmo, Ill.

**Hughes Tool Co.**
Clay City, Ill., *F. M. PRELL.*
St. Elmo, Ill.

**Illinois National Supply Co.**
Centralia, Ill., *FRED HARRIS.*
Clay City, Ill., *F. W. FUNK.*
St. Elmo, Ill., *A. E. MARSH.*
Lawrenceville, Ill., *I. F. McCANDLISH.*
Salem, Ill., *W. M. HOLLOWAY.*
Princeton, Ind., *HUGH BELLES.*

# NOW IT'S

SUPPLY BOVAIRD COMPANY

## *In* ILLINOIS

## at SALEM

## and ST. ELMO

### *Distributors of:*

- BOVAIRD Surface Pumping Equipment
- BOVAIRD Grip Elevators and Spiders
- SPANG CHALFANT, INC. Tubular Products
- NATIONAL TUBE CO., Tubular Products
- HAZARD Wire Lines
- WALL Manila Cordage
- WAUKESHA Motors
- "CATERPILLAR" Diesel Motors
- WILSON MFG. CO., Rotary Rigs and Winches
- REGAN Rotary Crown and Traveling Blocks
- REGAN Blowout Preventers
- GUMBO BUSTER Rotary Equipment
- HUGHES Rock Bits, Tool Joints and Valves
- REED Rotary Equipment
- AQUAGEL - Baroid - Baroco - Muds
- JONES Sucker & Pull Rods
- PACIFIC and OIL STATES Pumps
- LAMTEX Casing Pumps
- DEMPSTER Power Working Heads and Centrifugal Pumps
- CUSHMAN Gas - Gasoline Engines
- UNION Automatic Gas Separator
- EMSCO Pumping Units and Power Slush Pumps

**With 67 Years in the Oil Well Supply Business and 35 years in the Mid-Continent, The Bovaird Supply Company enters ILLINOIS with a background of experience, an intelligent understanding of your problems, and a trained personnel which admirably equips us to accurately, economically and promptly serve your needs.**

**Two New Stores — at SALEM and ST. ELMO — strategically located, well stocked, and manned by a trained sales and engineering staff, insures complete lines, quick delivery and dependable field service.**

## "BUY FROM BOVAIRD"

| OKLAHOMA | | KANSAS | | TEXAS | | ILLLINOIS |
|---|---|---|---|---|---|---|
| Ada | Sapulpa | Chase | McPherson | Borger | Kamay | Salem |
| Burris City | Oklahoma City | Hutchinson | Russell | Pampa | | St. Elmo |

**MANUFACTURING PLANT: Independence, Kans.** **KANSAS DISTRICT OFFICE: Wichita**

# *The* BOVAIRD SUPPLY COMPANY

## General Offices, Thompson Bldg.

## TULSA, OKLAHOMA

# ATTENTION!

## DRILLING CONTRACTORS IN ILLINOIS FIELD

WE HAVE BEEN MANUFACTURERS OF MANILA OIL FIELD CORDAGE HERE IN ST. LOUIS FOR MANY YEARS. WE ARE RIGHT AT THE BACK DOOR OF THE ILLINOIS OIL FIELD.

*OVER-NIGHT DELIVERIES—*

American
or
AMCO
"Allweather"
CATLINES

Derrick Lines

Spinning Lines

Our distributors listed below carry complete stocks for your convenience:

JARECKI MANUFACTURING COMPANY—STORES AT
CENTRALIA, ILL. - ST. ELMO, ILL. - LAWRENCEVILLE, ILL. - PATOKA, ILL. - OWENSBORO, KY. PRINCETON, IND.

LAWRENCEVILLE MACHINE WORKS, LAWRENCEVILLE, ILLINOIS. - LUCEY PRODUCTS CORPORATION, FAIRFIELD, ILLINOIS. - WESTERN MACHINERY COMPANY, CLAY CITY AND CENTRALIA, ILL.

**OUR PRODUCTS ARE OF HIGHEST QUALITY AND SUPERIOR WORKMANSHIP**

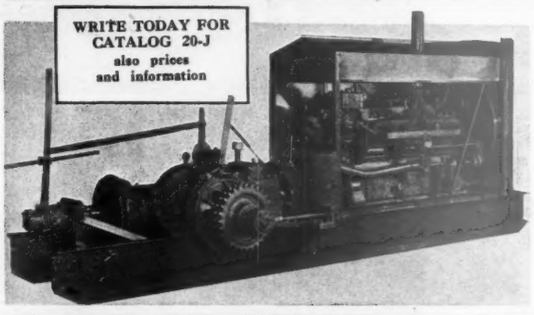
## ST. LOUIS CORDAGE MILLS

PHONE—CENTRAL 2550.
ST. LOUIS, MISSOURI.



## MAKE YOUR DRILLING DOLLARS GO DEEPER

***Use Young Engines on your Rotary or Cable Tool Rig***




Young Engines are rugged, fast and flexible, powered with sturdy Six Cylinder Gas or Diesel Motors ranging in sizes up to 350 H.P. The Gas Engine can also be operated on butane or gasoline.

WESTERN REPRESENTATIVES:
A. E. Avers—1323 S. Elwood, Tulsa, Okla.
—538 S. Elm, Centralia, Ill.

IVERSON TOOL COMPANY

## YOUNG ENGINE CORP. — CANTON, OHIO



## This Story is CIRCULATING

The modern way of controlling scale and corrosion troubles in ALL radiator circulating systems is with—

### SAND-BANUM SPECIAL

Just think of the simplicity of this treatment—small tablets (about the size of a nickel) that come six to a tube. Yet EACH TABLET protects 6 GALS. of water for one month! They are SAFE and SURE because they are based on the same colloidal principles as the well-known boiler water treatment—Sand-Banum "Standard"! They are used for radiator circulating systems of Diesel engines, gas engines, compressors, tractors, buses, trucks, etc.

**AMERICAN SAND-BANUM CO., Inc.**
9 ROCKEFELLER PLAZA
NEW YORK CITY



## IRON DRILLING CO.

—★—

Oil and Gas Well
Drilling Contractors

Operating Modern Diesel
and
Gas-Gasoline Rigs

—★—

410 Philtower Bldg.,
Tulsa, Okla.

H. L. "Iron" Singletary
Herrick Babcock


**Illinois Well Log Bureau**
Salem, Ill.

**Independent Exploration Co.**
Mattoon, Ill., *C. M. BOOS.*

**International Derrick & Equipment Co.**
Olney, Ill.

**Jarecki Mfg. Co.**
Lawrenceville, Ill.
Centralia, Ill.
St. Elmo, Ill.
Owensboro, Ky.
Patoka, Ill.
Princeton, Ind.

**Jeffrey Mfg. Co.**
Terre Haute, Ind.

**Jensen Bros. Mfg. Co.**
Salem, Ill., *FLOYD GERDES*
Altamont, Ill., *PAUL WOLFE.*

**Karchmer Pipe & Supply Co.**
Centralia, Ill.
St. Elmo, Ill.

**H. C. Kraft Supply Co.**
Oblong, Ill.

**Lane-Wells Co.**
Salem, Ill., *G. B. DAVIS.*

**Larkin Packer Co.**
Salem, Ill., *C. W. WOODWARD.*
St. Elmo, Ill., *W. B. PORTER.*
Centralia, Ill., *O. W. HOLMES.*

**Laughlin & Simmons**
Olney, Ill., *R. V. HENDERSON.*

**Lawrenceville Machine Co.**
Lawrenceville, Ill.

**Lucey Products Corp.**
Fairfield, Ill., *ALVIN JONES*

**Lufkin Foundry & Machine Co.**
Effingham, Ill., district office.
Centralia, Ill., *ELVIN READ.*
St. Elmo, Ill.

**Maloney Tank Mfg. Co.**
Salem, Ill., *CHARLES McNAMAR.*

**McNamar Boiler & Tank Mfg. Co.**
Salem, Ill., *TONY CROWLEY.*

**Midcontinent Map Co.**
Mattoon, Ill., *T. I. DARLAND.*

**Lee C. Moore & Co., Inc.**
Centralia, Ill., *R. B. HAMMOND.*
Vandalia, Ill., *W. A. SCOTT.*
Clay City, Ill., *E. R. JUKES.*

**Muskogee Iron Works, Inc.**
Salem, Ill., *CARL J. SPORNITZ.*

**The National Supply Co., Inc.**
Owensboro, Ky.
Allen, Ky.
Paintsville, Ky.
Winchester, Ky.

# Wilson RIGS

## ARE HELPING OPERATORS HIT PAY DIRT IN ILLINOIS

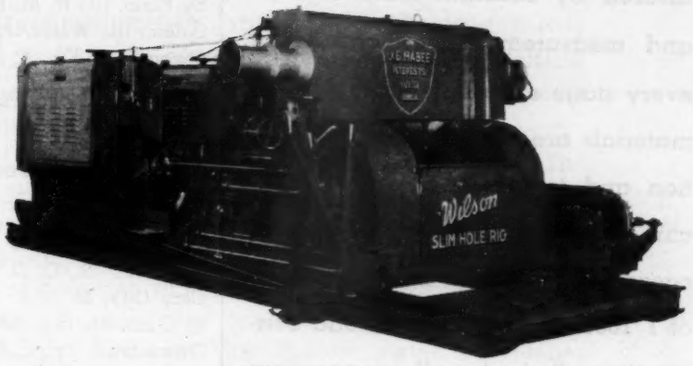
The speed . . . dependability . . . low cost maintenance and operation of Wilson Rigs is revolutionizing drilling, not only in the Illinois hot spot areas, but throughout the world as well.

Although Wilson Rigs have set new standards for performance wherever used, the present models reach a new high in achievement. They're more compact—easier to operate; sturdier yet lighter in weight; more efficient because of the many outstanding improvements; more dependable because they're designed to give the most perfect performance possible under all conditions.

And for deep (as well as for shallow) drilling, Wilson Rigs have definitely proved successful. In fact, there is a Wilson Rig for every need—for drilling to depths from 1,000 to 10,000 feet.

Why not inquire today? There's a Wilson distributor or representative near you to give you FACTS.

*Single Engine Gear Type Transmission Wilson Rig, one of three similar units recently shipped to Carter Oil Company for use in Illinois.*




*Wilson Slim Hole Rig recently shipped to J. E. Mabee Interests for use in Illinois. Compounded 140 H.P. engine and new Wilson Chain Transmission —the fourth Wilson rig sold this company.*

SEND FOR BULLETIN FEATURING WILSON'S NEW SLIM HOLE RIG AND DRILLING MAST POLE.

## OUTSTANDING ADVANTAGES AT A GLANCE . . .

1. POWER—Enough to pull casing, in low.
2. SPEED—All the derrick man can handle, in high.
3. EIGHT SPEEDS in all, all correctly arranged even steps—a speed for every load.
4. ADJUSTABLE ROTARY JACKSHAFT set out in front of drum —short rotary table drive which greatly reduces chain whip and breakage.
5. NEW BRAKE SYSTEM with single adjustment—acclaimed as the finest brakes ever put on a rig.
6. LIGHT WEIGHT, and with facilities for removing engine—greater portability.
7. Made in both SINGLE Engine or DUAL Engine hookup types.
8. New Large Capacity *Gear Transmission*, or Improved Model *Chain Transmission* available, and at low new cost.
9. NEW IMPROVED APPEARANCE—note the Slim Hole Rig picture above.

**Wilson MANUFACTURING CO.**

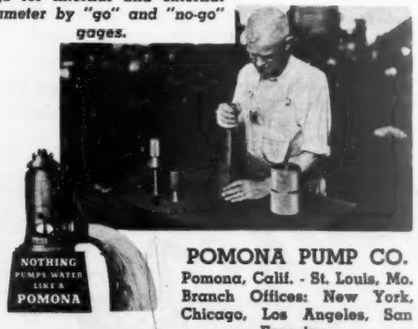
**WICHITA FALLS, TEXAS**

EXPORT OFFICE: 30 ROCKEFELLER PLAZA, NEW YORK, N. Y.
In Mid-Continent, Rocky Mountain and Eastern States
WILSON RIGS OR WINCHES MAY BE PURCHASED THROUGH
ATLAS, BOVAIRD, FRICK-REID, HOUSTON OIL FIELD MATERIAL, MID-CONTINENT, OIL WELL OR REPUBLIC SUPPLY COMPANIES
*or may be purchased Direct as Preferred.*

*Checking rim and collar threads and internal diameter of Pomona bearing retainers.*

**The long life of Pomona Pumps is insured by constant material tests and measurement verifications at every stage of manufacturing. Raw materials are analyzed for composition and tested for strength. Machined parts are gaged in some cases to a tolerance as close as 1/4 of 1/1000 of an inch. Pomona construction eliminates all unnecessary parts and concentrates added quality in every place where it counts. Trained men in two Pomona plants work in close touch with field service engineers to make sure that you will get the most water per unit of power paid for, with dependability at all times, and long life.**

*Checking Pomona rubber bearings for internal and external diameter by "go" and "no-go" gages.*




**POMONA PUMP CO.**
Pomona, Calif. - St. Louis, Mo.
Branch Offices: New York, Chicago, Los Angeles, San Francisco

# POMONA
## *Water-Lubricated Turbine* PUMPS


**National Tank Co.**
Clay City, Ill., *MACE R. RUSHING.*
St. Elmo, Ill., *SHERMAN BARCLAY.*
Centralia, Ill., *ROGER LaPLANTE.*
Owensboro, Ky., *REID SPEIR.*

**Norris Bros., Inc.**
Robinson, Ill.

**W. C. Norris, Mfgr.**
St. Elmo, Ill., *RUSSELL SMITH.*

**O. C. S. Mfg. Co.**
Salem, Ill., *D. E. WOLLNER.*

**Oil Well Supply Co.**
Olney, Ill., *PAUL H. SHEPHERD, district manager.*
Bridgeport, Ill., *H. A. BOOTH.*
Centralia, Ill., *R. W. PITTMAN.*
Clay City, Ill., *M. D. ROUTZON.*
St. Elmo, Ill., *H. M. HART.*
Salem, Ill., *WILLIAM WRIGHT.*
Owensboro, Ky., *B. C. CRADDOCK.*

**Owensboro Pipe & Supply Co.**
Owensboro, Ky.

**Owensboro Tool & Machine Co.**
Owensboro, Ky.

**Parkersburg Rig & Reel Co.**
Centralia, Ill., *O. D. DAVIS.*
Clay City, Ill., *J. E. DEVER.*
St. Elmo, Ill., *F. L. BRUCKNER.*
Owensboro, Ky., *L. O. WEAVER.*

**Pure Torpedo Co.**
Centralia, Ill.
Owensboro, Ky.

**Reed Roller Bit Co.**
Clay City, Ill., *J. W. ROBINSON.*

**Republic Supply Co.**
Salem, Ill.
St. Elmo, Ill.

**Schlumberger Well Surveying Corp.**
Mattoon, Ill., *E. F. STRATTON.*

**Seismograph Service Corp.**
Mattoon, Ill., *S. W. WILCOX.*

**Shaffer Specialty Co.**
Salem, Ill., *BEN F. KELLY.*

**Spencer-Harris Machine & Tool Co.**
Salem, Ill.

**Tracy Supply Co., Inc.**
Owensboro, Ky.

**Tulsa Rig & Reel Co.**
Olney, Ill.
Clay City, Ill.
St. Elmo, Ill.

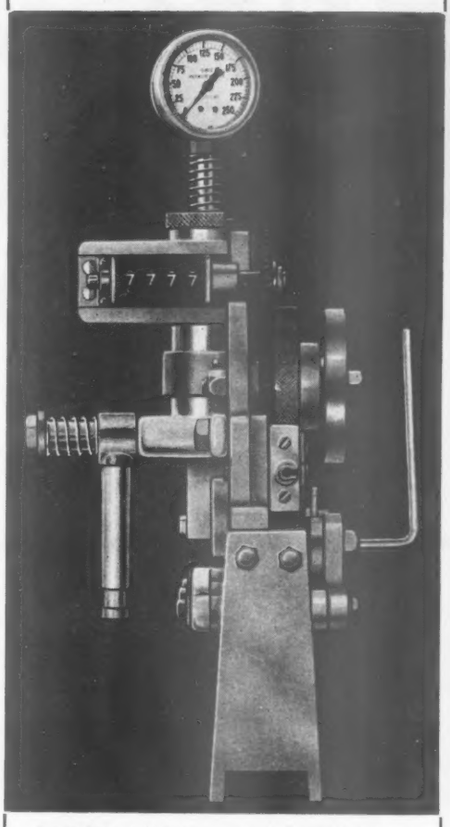
**Union Pipe & Supply Co.**
Owensboro, Ky.

**Universal Butane Corp.**
Centralia, Ill.

**Western Machinery Co.**
Centralia, Ill.
Clay City, Ill.

**Zublin Bit Service Co.**
Clay City, Ill.


# Safety "2 in 1" INDICATOR
**Combination**
**WEIGHT INDICATOR and MEASURE-METER**



**NOW YOU CAN KNOW:**
- Where your shot is placed
- When your line is fouled
- When your load is unhooked from line
- The weight on your line
- When you encounter fluid
- The exact instant when you are on bottom

*Write for Illustrated Literature*

**FRANK MATHEY MACHINE WORKS**
315 East 4th St. Phone 2-9375
TULSA, OKLAHOMA
*Manufacturer of Reels for Oil Well Shooting and Bottom Hole Pressure Work.*

**EXPERIENCED and DEPENDABLE**
in
- Overhauling Slush Pumps (Steam and Power)
- Overhauling Drilling Engines (Steam and Oil)
- Turning Brake Flanges on Cable Drums and Pulling Units

**PREST MACHINE WORKS CO.**
Gives you the BEST
420 E. Grand Ph. 3-3478
OKLAHOMA CITY
*Established 1909*

# ECONOMY!*

(Cutaway view of Dresser Coupling, Style 38)

## *ECONOMY... ...YES! ALSO:

1. PERMANENT TIGHTNESS—*proved* for 50 years, on 150,000 miles of pipe.
2. FLEXIBILITY—expansion, ground movements, vibration, lowering stresses, etc., are absorbed. Many curves, contours, etc., made with straight pipe.
3. SIMPLICITY—standard parts are assembled on plain-end pipe by unskilled labor, using only a wrench, under almost any weather or ditch conditions.
4. SPEED—typical examples: 3 min. for 4" size; 5 min. for 8"; 8 min. for 14"; 10 min. for 18"; 12 min. for 20" (two workmen).
5. STRENGTH—predetermined; joints safely withstand any specified pressure.

Dresser Couplings, Style 38, for Light-wall Steel Pipe, are ideal, economical joints for this pipe, especially if wall is too thin to thread. Does not damage internal linings often used (a special advantage in sizes too small for workmen to enter). Same as Regular Coupling (see cutaway view above) except of lighter construction. Lower in price. Transportation costs also less. Sizes: 2 OD, 2 ID, 2¾ Cas, 3 ID, 3½ ID, 4 ID, 4½ ID, 5⅝ Cas, 5⅝ Cas, 6 ID, 6⅝ Cas, 7⅝ Cas, 8 ID.

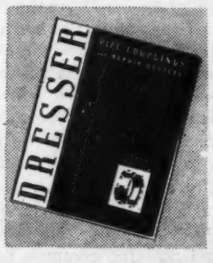
WHEN you figure pipe-joint ECONOMY, include "pipe-joint materials and labor"—but don't stop there. That's only part of *true* cost.

Add in, too, certain other items that also affect pipe-joint costs, such as: heavy outlays for jointing tools and equipment; unexpectedly high labor costs; possible supervision difficulties; adverse effect on other operations of slow joint-making, bad weather, or wet ditches; difficulties in getting tests; or later repairs and service interruptions.

How do Dresser Couplings eliminate such indirect but important costs?

Initially, Dresser Couplings save because labor costs are low; line is completed faster; no costly machinery is required; flexibility of coupling eliminates many fittings and bends; *plain-end* pipe is used; and operators report gratifying test results quickly. And note that Dresser material-and-labor costs can be accurately estimated in *advance*—down to the last penny—no "extras"!

After installation, Dresser Couplings continue to reduce costs because their flexibility absorbs harmful expansion, vibration, and ground movements; and because their tightness, strength, and trouble-proof performance help give freedom from excessive maintenance, leakage, service interruptions, and revenue losses. Moreover, when the line is taken up, Dresser joint parts may be salvaged, effecting a *still further* reduction in *ultimate* pipe-joint costs—the true and only reliable yardstick of economy!




For further details, write for our General Catalog No. 36, a virtual handbook on pipe joints. ● S. R. DRESSER MFG. CO., BRADFORD, PA. *New York:* 17 East 42nd Street; *Chicago:* Peoples Gas Building; *Houston:* Shell Building; *San Francisco:* 1038 Polk Street; *In Canada:* Dresser Mfg. Co., Ltd., 60 Front Street, West, Toronto, Ontario.

# DRESSER
## PIPE COUPLINGS

# Peculiar Provisions Uncovered in Some Illinois Basin Leases

Oil operators seeking leases in the Illinois field have run across some peculiar provisions in their quest for clear titles and, in some instances, have been compelled to travel thousands of miles and in several states in order to get the proper names on the dotted lines.

The abstract is not something new in Illinois each county having one or more abstractors, although few are bonded; however, a $1,000 bond means little when the title to a million dollar property is involved. Many of the abstractors also are in the real estate and loan business and some are attorneys-at-law. Before the big oil activity got under way it was necessary for the abstractors to have some other means of livelihood, the abstract business being very slow.

Much of the land in the Illinois basin has been in the same families for several generations, and frequently persons inheriting property cared little about what happened to the abstract as no one questioned their ownership. Also, when any of this land was sold it often went to some neighbor who knew the history of the land and did not require an abstract, unless the land had exceptional value because of the coal or where it was exceptionally good farming land, as around Mattoon and farther north, where it sold for $250 an acre and up prior to the oil play.

### Sketchy Titles

So, when the oil men came in, they found land titles very sketchy, at best. In the beginning of the lease play, the lessees paid the landowners $1 per lease, whether it covered 40 acres or 640 acres. Several of the companies had 30 or more lease men working in a single area simultaneously. In addition numerous individuals were active in leasing. If the companies had wanted abstracts at first the Illinois abstractors would not have been in position to have taken care of the work. the play being so extensive, new and unexpected. The companies, however, were buying so much for so little money that they felt it was unnecessary to go to the expense of getting abstracts.

Originally, they took leases from anyone living on the land and paid the dollar per lease. Later. they required the lessor to show the tax receipt or deed and now the common practice is to obtain a certificate of title from the abstractor. A typical certificate of title reads as follows:

"I, the undersigned, bonded abstractor in and for ..... County, Illinois, do hereby certify that I have examined the records in the office of the Register of Deeds, treasurer, probate court and clerk of the circuit court of said county, relative to the title of the following described land: ....."

"..... and from such examination find that the name of the grantee in the last deed to such lands, as shown of record, is ..... subject to mortgages of record as follows: ..... Also that there are no oil, gas or other mineral leases filed against such land except ..... That there are no royalty conveyances of record offsetting such land except ..... Also that there are no taxes on record against such land except ..... That there are no federal state tax liens, judgments, suits pending or transcripts of judgment from the United States courts, in the circuit court of the said county, against ..... This certificate is not intended to cover the legality or sufficiency of the instruments or proceedings in the chain of title on which title of said ..... is based, the search on which this certificate is based not having extended to such prior-made instruments or proceedings, and does not cover any instrument filed only as chattel. Dated and signed."

### Cost Is Moderate

The average cost of these certificates is from $3.50 to $5. The companies rarely require an abstract except where they are going to drill or where high-priced acreage is being leased near development.

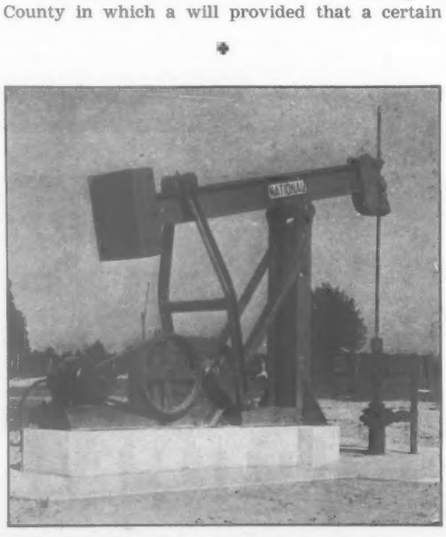
Some of the big companies have made arrangements with the abstractors and recorders, in some instances, to bring in their own abstractors and use the records in drawing up their own abstracts at night. Because of the scarcity of qualified abstractors in the state, it was necessary to import much of the competent help from other places.

The southern Illinois area had evolved from a quiet coal and farming region into perhaps the most intensively leased area in the country in so short a time it was impossible for resident abstractors to handle the work with their regular forces.

Many of the abstracts were of the type once common in Kansas which did not abstract the instrument in full but merely showed the name of the grantor and grantee, date and acknowledgement and kindred data. Now, the oil and pipe line companies are insisting on their abstracts being made complete in accordance with the standard in effect in the southwestern states.

This has been found essential, following opening of pools and development of the oil lands, as many of the deeds and wills contain unusual provisions.

Illustrative of this was a case in Washington County in which a will provided that a certain tract of land go to the eldest son, with the provision that the residence must always be painted white and the barn red, and that the son must reside on the premises and never rent any part of it. If he failed to carry out any of these provisions, or if he died without leaving descendants, the land passed to the next son who was bound by the same conditions. If he, in turn, violated any of the conditions or died without descendants the title passed to the estate of the man who made the will.



*Pumping unit of well producing from two formations in the Louden field. Current for electric motor is manufactured in one of Carter Oil Co.'s generating plants*

### Provisions of Will

In some sections of the basin a large part of the population is composed of residents of foreign extraction who have followed customs of their native land in disposing of their properties. In these areas it has been the rule for the parents to deed certain tracts of land to each of their children, reserving a life estate and providing in the deed that the particular heir to whom the tract was deeded must pay a stated amount to each of the other children upon the death of the grantor; also that during the life of the grantor the grantee must furnish the former each year so many chickens, hogs, cows or other livestock and so much hay, corn, potatoes, and firewood.

Such cases make it essential that the grantor join in the lease in order to make it valid. In many such cases it is necessary to obtain signatures of all the heirs and, frequently, they are scattered over many states.

### Lease Burial Lot

Recently a group of Centralia operators announced they would drill two oil wells on a cemetary lot 16 feet long and 16 feet wide. The lot is in the midst of the Lake Centralia field, a short distance from the discovery well. Three persons were buried on the lot, parents and their child, about 50 years ago. The heirs received from $25 to $250 each from the estate. This provided one of the more complicated lease deals yet completed.

It was only after one company had failed to obtain a lease on the tract that the Centralia men went to work on the project. It was necessary to seek out and obtain the signatures of all heirs and this necessitated thousands of miles of travel in nine states, the last heir being found in Colorado. In the end the operators purchased the lot outright for a reported $1,600 and were compelled to have the bodies removed to another cemetery and clear the lot before they could begin plans to drill two wells, one to Benoist sand and one to McClosky lime, on the 16-foot square tract. Having only the right of egress and ingress to the small tract, surrounding acreage being held by Texas Co., it became necessary for the operators to make exceptional preparations to drill. At last reports, they were reputed to be ready to use a core drilling machine, 12 feet by 12 feet, with slush pits beneath the derrick and storage tanks on a concrete platform above the well. If and when the two wells are drilled, it may force the drilling of eight offsets.

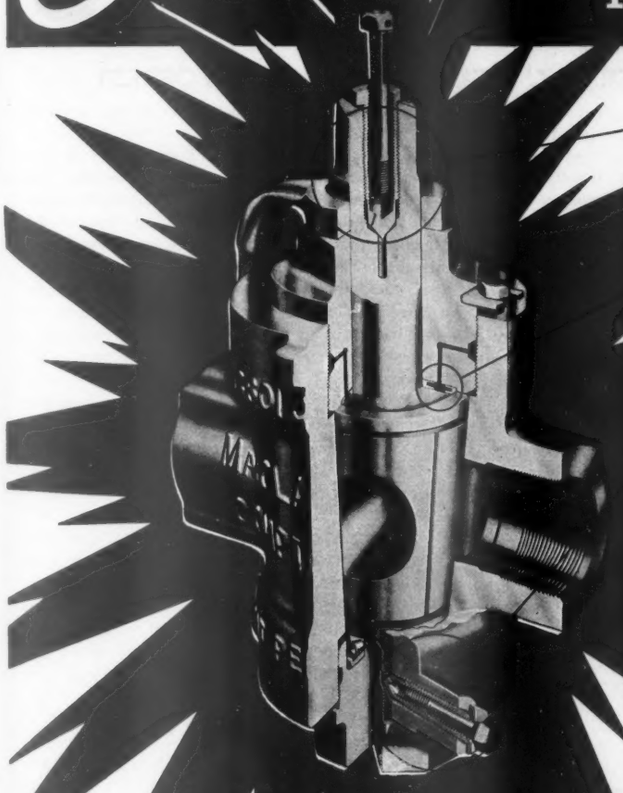
Such cases as these, coupled with generally inadequate abstracts, have added considerable expense and trouble to operations of the oil men in Illinois.

# New!

# MacCLATCHIE

announces an addition to
their exclusive line of

# HYDRO-SEAL PLUG VALVES



## LUBRI-CHECK

...e mechanical means of sealing off the grease chamber while lubricating ...w is removed and new grease inserted, *when valve is under pressure.* ...mple in operation. No balls or springs.

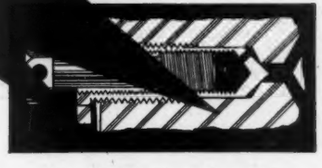
## PACKING RINGS

A prepared packing mixture is forced into the packing ducts thus expanding the packing rings lips and at the same time sealing the threads between the nut ... the body ...age. Packing mixture will stand 700 deg. F. heat ... steadfast barrier against leakage of fluids and gases.

## ...NG FROM THE OUTSIDE

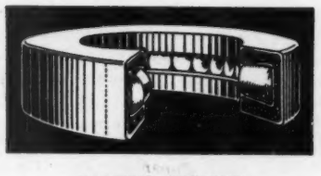
...turn of the packing bolt forces packing mixture to all necessary parts *...e valve is in use;* and any leakage can be stopped instantly by a turn of ...ing chamber bolt. No rubber, leather or metal sealing means to wear out ...or be replaced—hence no shut-downs to replace packing!

**No other plug valve on the market today offers you the many advantages which are expressly designed by ...acClatchie for low operating costs!**



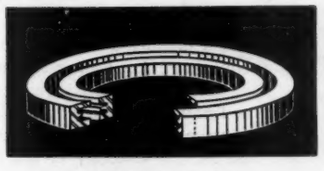
**ADVANCED "LUBRI-CHECK"**

To operate: (1) Turn "Lubri-Check" left to pin (seated position). (2) Remove lube screw. Insert grease stick. Replace lube screw. (3) Turn "Lubri-Check" right to pin (operating position). (4) Turn screw right to force grease into valve.



**PACKING CHAMBER**

Packing chambers, both upper and lower, are equipped with "Lubri-Check" units. Packing bolt can be removed and replaced *while valve is in use* to refill with packing mixture.



**PACKING RINGS**

Outer and inner grooved rings are placed above plug body facing each other. When packing is forced from outside through packing chamber to ducts, ring lips expand holding packing solidly in position and forming a leak proof barrier.

**ROLLER BEARINGS**

MacCLATCHIE Hydro Seal plug valves are equipped with double-duty *heavy* roller bearings for *EASY* turning.

## MacClatchie ...neers ...in!

IT'S packed ...rom the ou...de; it's e...ipped with the new MacClatchi... "Lubri-Che...k" to give air tight sealage; it come... in round *full* opening or *conventional type* oper...ng through plug; it has *heavy* Roller Bearings; it is steel or Meehanite throughout body and plug; and it features many other advantages *never before* available at such *low prices.*

The valve was invented to cut maintenance costs to an absolute minimum, and to abolish unnecessary shut-downs for the replacement of parts. Test runs have proven its money saving value, and MacClatchie is ready to pass on this great saving to you!

SEND FOR ADDITIONAL INFORMATION.

200, 500, 1000, 2000, 3000 W.P.

*Screwed or flanged ends.*

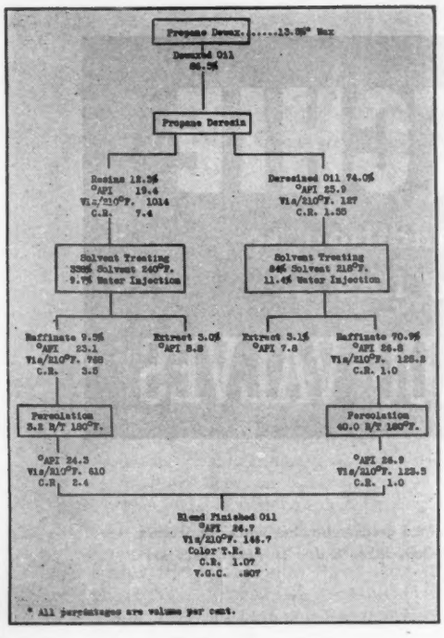



*Fig. 1—Processing to cylinder stock*

# Propane in the Manufacture of Lubricating Oils

By W. B. McCLUER, J. T. DICKINSON and H. O. FORREST
Kendall Refining Co. M. W. Kellogg Co.

During the past 15 years a number of changes have been taking place which have seriously affected the refiner of Pennsylvania crude. Most of these changes have resulted not from any action of the Pennsylvania refiner himself, but from developments in the petroleum industry outside the Pennsylvania field and from changes in design of automotive equipment in which most lubricating oil is used. Before discussing the application of propane processing to Pennsylvania oils, it is helpful to review briefly these changes in order to realize what is required to meet them and to understand the ways in which propane may be used to accomplish these results.

The first, and probably the most important, change that has taken place is the recognition of the high quality of Pennsylvania oil and the development of processes applicable to other and less expensive crudes which would enable them to approach this quality. Prior to 1925, petroleum technologists were in considerable disagreement as to the relative qualities of lubricating oils produced from crude oils from various sources. The consuming public, on the other hand, was apparently convinced that lubricating oils produced from Pennsylvania crude were premium products and were worthy of a reasonable price differential. During the period from 1925 to 1930, petroleum technologists came into fairly universal agreement that the lubricants produced from Pennsylvania crude were definitely superior to lubricating oils then being produced from most other crudes. Once such an agreement was reached, it was only a relatively short period of time until improved lubricants approaching Pennsylvania oil quality were being produced from inferior crude oils.

## Pennsylvania Lubricants

Many Pennsylvania refiners will remember the developments of the past two decades in which most light oil products from Pennsylvania crude, originally considered of superior quality, became strictly competitive with similar products from other crudes. During the last six to eight years they have seen a similar trend in the case of lubricating oils produced from Pennsylvania crude, and while the trend with lubricants will probably not continue to the point reached in the case of light oils, the latter serves as a parallel which the Pennsylvania refiner should keep in mind when considering future operations.

There can be no reasonable doubt but that some lubricating oils produced by modern refining methods from inferior crude sources have already approached conventional Pennsylvania quality. As a result of this change, the refiner of Pennsylvania crude is finding profitable marketing of his oils a greater problem.

The second important change has been in the increasing demand for lighter motor oils. Several years ago the average oil used in motor cars was heavier than an S.A.E. 30 grade with relatively large consumption of the S.A.E. 40 grade. Over a

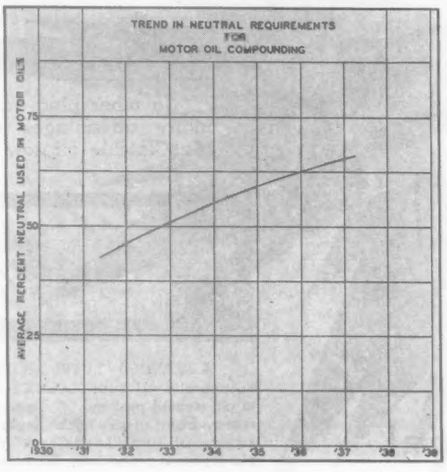



*Figure 2*

period of only a few years the average viscosity requirement has decreased until it is now approaching the S.A.E. 20 grade, with considerable demand for lighter oils. One way of visualizing this change is in the relative demands for 180-viscosity neutral and for 150-viscosity bright stock, which are the usual blending stocks in the Pennsylvania refinery. As late as 1932 the motor oils produced in one refinery required only 45 per cent of neutrals, while in 1937 they required 65 per cent of neutrals. For every 100 units of neutral available in the crude the Pennsylvania refiner was able to utilize 122 units of bright stock in 1932, while in 1937 the same amount of neutral enabled him to dispose of only 54 units of bright stock in his blended motor oils. In other words, this change in motor oil requirements has reduced the bright stock utilization in motor oil blends by about 55 per cent. From the same amount of crude processed, or for the same quantity of neutral and blended motor oils made, the amount of surplus bright stock has been greatly increased and now represents a very serious problem.

The third change which has been taking place, and which is still in progress, is in the motive power which uses the major portion of lubricating oils. Recent trends in automotive and aeronautic engines have placed internal combustion engine lubricants under a much more severe duty than has ever been imposed in the past. This trend cannot be offset entirely by improvement in engine design, since it is largely the result of producing a greater horsepower output from a given engine displacement, which naturally results in appreciably higher operating temperatures and pressures. For this reason oils which were satisfactory for severe duty a few years ago are no longer entirely satisfactory for present-day engines. The trend in engine manufacture at the present time seems to be to take maximum advantage of the highest lubricating oil quality which is available, so that motor oils which were entirely adequate a few years ago are now reaching the limits of their applicability. This limit may be in several characteristics, but the general tendency is to consider oxidation and sludge formation as extremely important factors, and also to consider many others which were not considered of serious consequence only a few years ago. This change has not greatly affected the Pennsylvania refiner so far, but it is one which he should evaluate thoroughly in planning for the future.

A consideration of these changes and their

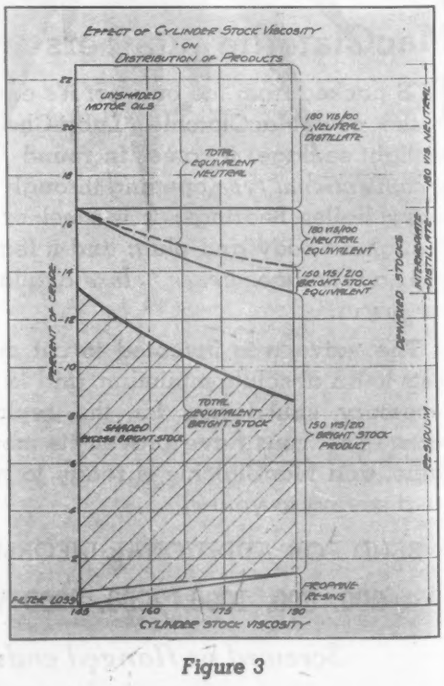



*Figure 3*

# Manufacture Oils

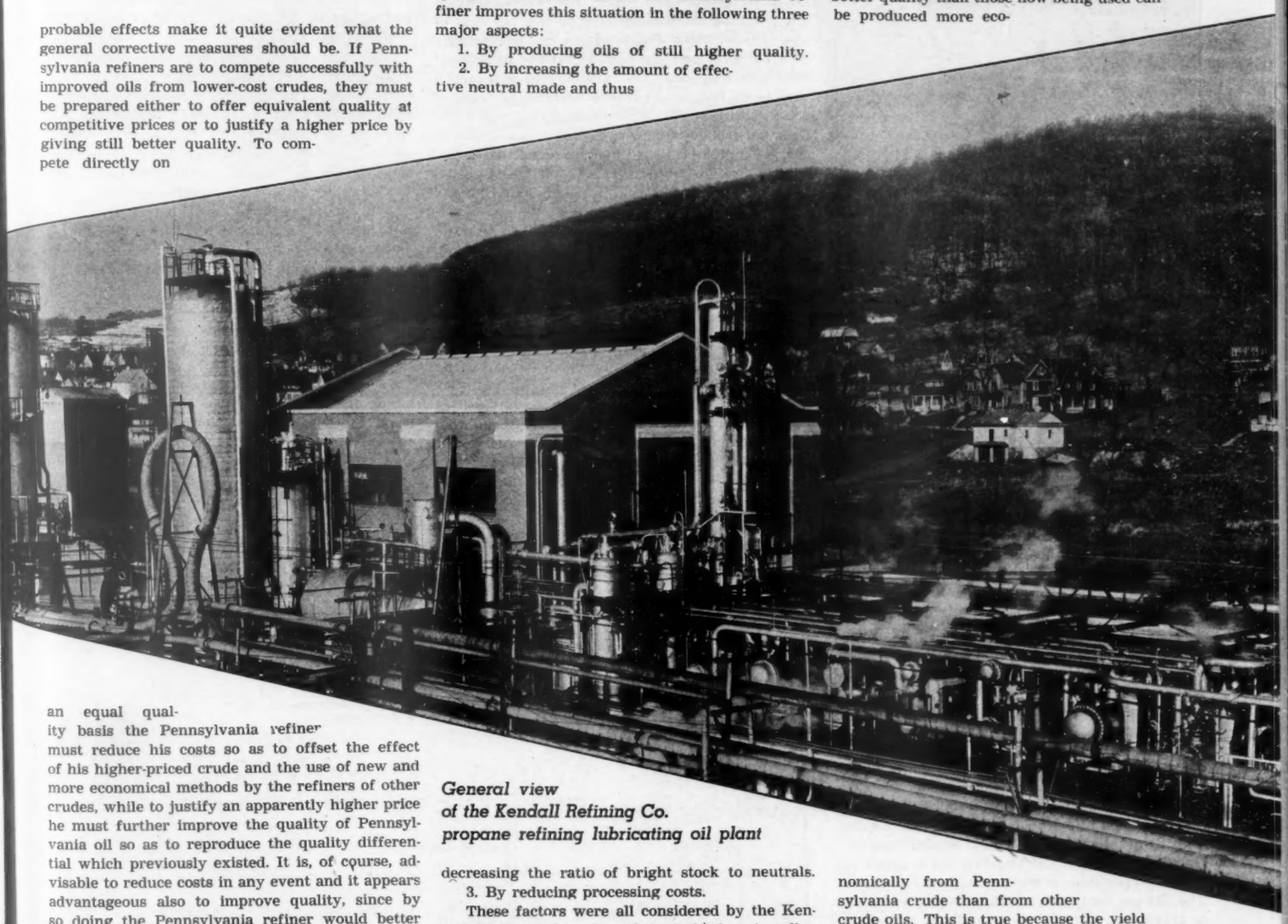
probable effects make it quite evident what the general corrective measures should be. If Pennsylvania refiners are to compete successfully with improved oils from lower-cost crudes, they must be prepared either to offer equivalent quality at competitive prices or to justify a higher price by giving still better quality. To compete directly on an equal quality basis the Pennsylvania refiner must reduce his costs so as to offset the effect of his higher-priced crude and the use of new and more economical methods by the refiners of other crudes, while to justify an apparently higher price he must further improve the quality of Pennsylvania oil so as to reproduce the quality differential which previously existed. It is, of course, advisable to reduce costs in any event and it appears advantageous also to improve quality, since by so doing the Pennsylvania refiner would better the competitive situation and at the same time be able to meet the demand for improved oils which modern automotive engines require. In the same way that the Pennsylvania refiner was previously fortunate in having an oil of natural high quality, he is now fortunate in being able to start his improvement at this high quality level and thus economically reach a level not readily equalled by refiners of inferior crudes.

The problem of meeting the present lower viscosity requirement is clearly one of reducing the average viscosity of the total lubricating oil fractions but with a minimum decrease in total production. The elimination of a small amount of very viscous material is obviously the most satisfactory method of obtaining a minimum viscosity with a maximum yield. Such a step will reduce the amount of bright stock and particularly the ratio of bright stock to equivalent neutral.

It thus appears that the changes in the competitive situation and in the viscosity and quality of the oils required will seriously interfere with the profitable manufacture and marketing of Pennsylvania lubricants unless the Pennsylvania refiner improves this situation in the following three major aspects:

1. By producing oils of still higher quality.
2. By increasing the amount of effective neutral made and thus decreasing the ratio of bright stock to neutrals.
3. By reducing processing costs.

These factors were all considered by the Kendall Refining Co. when they decided to install a propane dewaxing and deresining plant in their refinery at Bradford, Pa., in 1936. Some of the results of the early operation of that plant have already been discussed in a previous publication[1] and it is the purpose of the present paper to show further how the use of propane processing has helped them to improve their situation.



*General view of the Kendall Refining Co. propane refining lubricating oil plant*

## Improvement in Lubricating Oil Quality

It has been previously stated that lubricating oils of improved quality from inferior crudes are available today which approach the quality of conventionally refined Pennsylvania lubricating oils. These oils of the present improved quality can be produced in many cases more cheaply from crude oil obtained from other areas than oils can be produced from Pennsylvania crude. The above statement is true, of course, largely because of the cost differential which exists between Pennsylvania and other lubricating oil crudes. Assuming that this differential will remain, it is important to find some way of correcting this situation, even when the manufacturing cost is reduced to a minimum.

One such method would be to produce a still higher quality oil to give a greater factor in present engine design, and to permit even greater demand on the lubricant by future engine design. It is generally recognized that lubricants of even better quality than those now being used can be produced more economically from Pennsylvania crude than from other crude oils. This is true because the yield from other crude oils decreases very rapidly as the quality is improved above the present high-quality range. Since Pennsylvania oils require only slight treatment to improve the quality, the decrease in yield is not such an important factor, and improved Pennsylvania oils should be able to justify a higher priced crude in the same way that they were able to do so when the quality differential was greater than at present.

The generally accepted method for improving the quality of Pennsylvania oils is solvent treatment, not only for increase in viscosity index, although that usually accompanies the treatment, but also for improvement in oxidation and sludging resistance and for reduction in carbon residue. It is not the purpose of this paper to compare the

[1] Refining of Pennsylvania Oils by Propane Process: McCluer, Dickinson and Forrest; The Oil and Gas Journal, March 31, 1938.

merits of the various solvent processes but only to indicate how propane processing may be utilized in conjunction with them. Because the value of propane in this connection is essentially restricted to residual oils, the discussion omits the question of solvent treating distillates, except as they might be included in long residuum refining operations.

The propane deresining process itself results in some improvement in quality because the heaviest ends of the cylinder stock are removed to produce a narrower cut bright stock. Elimination of the most undesirable heavy oil, and lowering the

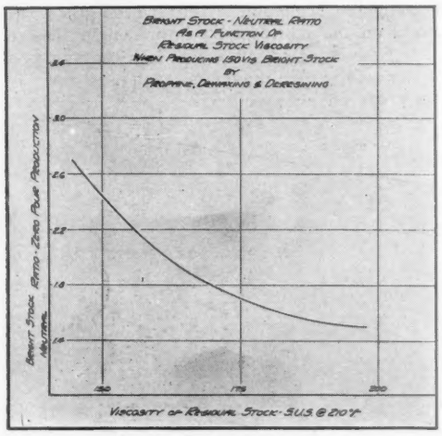



*Figure 4*

volatility and increasing the flash and fire points of the bright stock which results from this process, constitute improvements in quality. This improvement alone, however, is not all that is required to justify an appreciable premium for the bright stock.

The dewaxed and deresined oil from a propane plant may be treated directly with any desired selective solvent without loss of efficiency in the extraction process. There is really an advantage obtained by deresining in the case of single solvent treating because the removal of a small amount of resins gives a saving in decolorizing costs even when solvent treating is practiced.

More recently, it has been found that propane deresining has other advantages as a means of preparing residual stocks for efficient treatment with single solvents. It has been shown that a heavy resin fraction may be treated separately with a high solvent dosage and the less viscous deresined oil with a low solvent dosage, with a distinct advantage in both quality and yield as compared with treating the entire residuum as one fraction. The data presented in Figure 1 shows the results of separating the dewaxed oil into two fractions by deresining, treating and decolorizing each fraction separately, and blending the finished oils in the proportions in which they were produced. The 12.5 per cent resin fraction, having a viscosity of 1014 S.S.U. at 210° F. was produced in commercial operation at the Kendall refinery and the deresined oil which was produced simultaneously had a viscosity of 127 S.S.U. at 210° F. and a color of about 7 N.P.A.

The resin fraction was treated in a laboratory countercurrent tower with 338 per cent phenol and 9.7 per cent water was injected at the bottom of the tower for refluxing. The raffinate from this process was 75.9 per cent of the resin charge of 9.5 per cent of the original cylinder stock. This raffinate had a viscosity of 768 S.S.U. at 210° F. and a carbon residue of 3.5. It was then percolated in naphtha solution through Attapulgus clay to a color of 1 T.R., or about 8 N.P.A., with a clay yield of 3.2 bbls. per ton. The finished resins then had a viscosity of 610 S.S.U. at 210° F. and a carbon residue of 2.4 Although this is an unusual product itself, it is of particular advantage when blended with the separately treated and percolated deresined oil.

The deresined oil was treated with only 84 per cent solvent as compared with the 338 per cent used on the resins, and the yield was 95.8 per cent based on the charge, or 70.9 per cent of the original cylinder stock. The viscosity was reduced only slightly (to 125.2 S.S.U. at 210° F.), while the carbon residue was reduced to 0.96. This raffinate was then percolated through Attapulgus clay with a yield of 40 bbls. per ton, to give a color of 2¼ T.R., or about 6 N.P.A., and essentially no change in carbon residue.

When these two percolated oils were blended in the proportions in which they were produced, the resulting oil corresponded to 80.4 per cent of the cylinder stock, the dewaxing loss having been 13.5 per cent and the loss to extract by solvent treating 6.1 per cent. The finished oil had a carbon residue of 1.07, which is less than 0.75 per cent of the viscosity at 210° F., and the V.G.C. was 0.807. It is particularly noteworthy that the heaviest 12 per cent of the finished cylinder stock has a low carbon residue for the viscosity and a viscosity-gravity constant which is better than that of the main portion of the bright stock.

Adoption of propane deresining followed by solvent treating thus permits any degree of refinement on the heavy and lighter fractions of the bright stock. For example, the propane deresining step may be carried out to produce only 3 to 5 per cent of resins and the deresined oil may be finished by percolation alone as is the usual practice at the Kendall refinery. On the opposite end of the scale, it has been demonstrated by pilot plant opertions that it is possible to precipitate as much as 30 to 40 per cent of resins and treat them with a large quantity of solvent, while the deresined oil simultaneously produced may be used directly or may also be solvent treated to any desired degree. Between these limits a wide variety of combinations are possible which permit the refiner to take care of market demands and fluctuations in crude and product prices.

Propane deresining, therefore, does give improvement in some characteristics, and also serves as a means of preparing residual stocks for most efficient treatment with selective single solvents.

### Reduction in Viscosity (Bright Stock-Neutral Ratio)

The yield of neutral and bright stock obtained from Pennsylvania crude oil depends to a considerable extent on the particular area from which the crude is obtained, on the specifications of the finished product, and on the refining methods employed. It is probable that the average yields of neutral and bright stock obtained from Pennsylvania crude oil are approximately 6 to 7 per cent and 15 to 17 per cent respectively. In general the ratio of bright stock to neutral is about 2.5 to 1, or to state it differently, the neutral is about 29 per cent of the total lubricating oil produced from Pennsylvania crudes.

As pointed out previously, there has been a gradual decrease in the average viscosity of lubricants required for automotive engines. Considered from a viewpoint of neutral requirement, this trend is shown graphically in Figure 2. The increase in neutral requirement from 45 per cent of the motor oil blends in 1932 to 65 per cent in 1937 is of even greater significance than these figures would imply at first glance. The limitation in crude refining or production capacity, or both, may prevent a refiner from marketing as much blended motor oil as he might wish. For example, a refiner processing 5,000 bbls. per day of crude could finish about 300 bbls. of neutrals or about 650 bbls. of blended motor oils on the basis of the 1932 average viscosity. In 1937, however, the amount of neutral produced remaining the same, he could make only 460 bbls. of blended motor oils, and would have 590 bbls. of surplus bright stock as compared with a surplus of only 400 bbls. in 1932. Surplus bright stock, over and above the amount that can be blended with Pennsylvania neutral for average motor oil requirements, now amounts to 80 per cent of the Pennsylvania bright stock that could be produced, or about 12 per cent of the total Pennsylvania crude processed.

*(To be continued)*

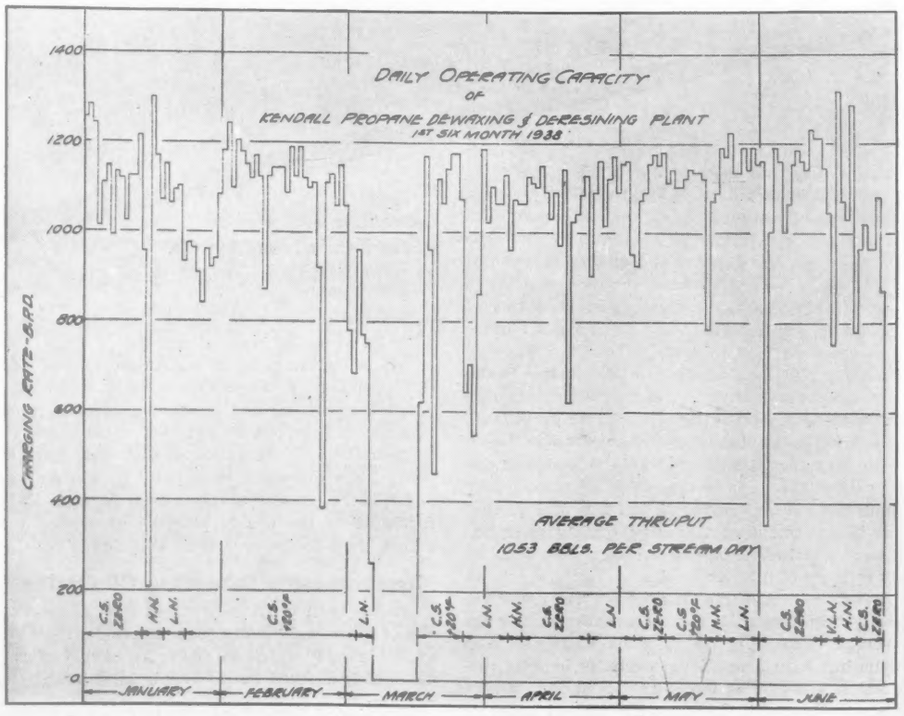
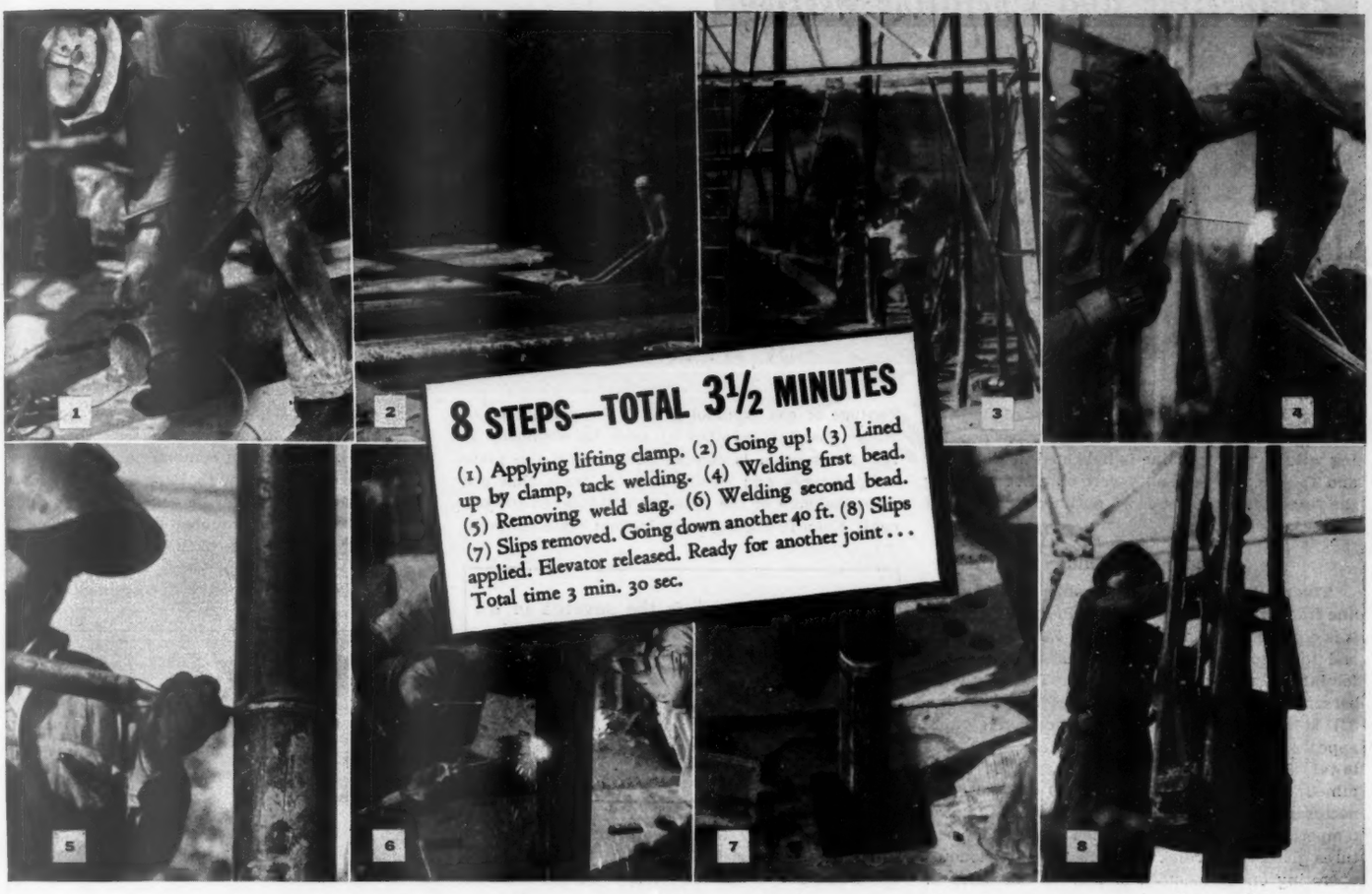



*Figure 5*


8 STEPS—TOTAL 3½ MINUTES
(1) Applying lifting clamp. (2) Going up! (3) Lined up by clamp, tack welding. (4) Welding first bead. (5) Removing weld slag. (6) Welding second bead. (7) Slips removed. Going down another 40 ft. (8) Slips applied. Elevator released. Ready for another joint . . . Total time 3 min. 30 sec.
1
2
3
4
5
6
7
8

# "SHIELD-ARC" WELDED CASING in the New Illinois Field

WELLS of a major oil company now being drilled in the new Illinois Basin have *"Shield-Arc"* welded casing for permanent, low-cost construction.

A cycle of operations in the running of one length of casing is pictured above. Time for completion of all operations for the joint shown was 3½ minutes.

Casing for this 1588 ft. well was 6" O. D. Joints are plain end, "U" bevel with two weld passes made by Lincoln *"Shield-Arc"* welders and 3/16" "Fleetweld 5" Electrodes. Welding contractors, H. C. Price Co., Bartlesville, Okla.

For further details on the *"Shield-Arc"* welding of casing, consult the nearest Lincoln office or mail the coupon.

**NEW** The Lincoln *"Shield-Arc"* with Self-Indicating "Job Selector" and Current Control. Provides quick, positive setting for any TYPE or SIZE of arc. Maximum welding quality and speed . . . everytime.

**LINCOLN SHIELD-ARC WELDING**

PRODUCES A STRONGER, MORE LASTING CONSTRUCTION FASTER, AT LESS COST

**THE LINCOLN ELECTRIC CO.**
**Dept. N-547, Cleveland, Ohio**

Send free copy of ☐ Procedure for Welding of Casing. ☐ Pipe Line Welding Bulletin. ☐ "The New Lincoln *Shield-Arc*."

Name _____

Position _____

Company _____

Address _____

City _____ State _____

# Fractionating Complex Mixtures

## Natural Gasoline Fractionation—Effect of Number of Plates

By W. L. Nelson

The effect of number of plates on the degree of fractionation attained when processing wild natural gasoline is indicated in Figure 12 and Table 8. These results were obtained by using the same principles as those outlined in Part 6 of this series of papers.

### Amount of Reflux

The amount of reflux commonly used in gasoline fractionators is so large that in most instances it is equivalent to infinite reflux. For this reason, and to simplify the computations, the equations for infinite reflux were employed. The only cumbersome part of such equations (refer to Equation 32)[1] is the product of equilibrium constants which appears in the denominator. Thus, for a 10-plate tower, 10 equilibrium constants must be determined, and for a 50-plate tower, 50 constants are necessary. The constants were determined for the temperatures in Figure 11, which are the temperatures given by Burdick[2] for a 40-plate fractionator operating on a feedstock similar to that used in this study. Essentially the same temperature distribution was used for the 10-, 20- and 50-plate towers. The fractionator was assumed to be operating at a pressure of 190 pounds per square inch absolute.

In making such computations, somewhat of a trial-and-error solution is necessary. The percentage of gas (symbol g) and the percentage of stable gasoline (symbol h) must be assumed. If this assumption is commensurate with the plate temperatures and the number of trays that are used, the sum of the $y_i$ terms will total to 100 per cent. Even further, grossly inexact plate temperatures, particularly the top and bottom temperatures, cannot be used. These outlet temperatures are a function of the materials being produced at the top and bottom and hence they must be corrected, should the original temperatures be too greatly in error.

*This article which is the seventh in a series of articles which will appear in The Oil and Gas Journal, is a further study of gasoline stabilizer operation. Number 6, which appeared on page 59, October 20, 1938, was a check of the methods here proposed, against actual plant operation.*

### Fractionation Attained

Under these conditions, propane was found to be effectively removed in even the 10-plate tower. This and other results are given in Table 8 and Figure 12. Note that even isobutane and butane are well separated in a 20-plate tower but that 40 plates are required to get a thorough separation of isobutane. The results for the 50-plate tower do not appear to be entirely consistent. In a 50-plate tower, the main factor is the product of the 50 equilibrium constants and a slight shift either upward or downward in temperature throughout the center of the tower causes a large difference in the product of constants. The equilibrium constants of Dr. G. G. Brown were used.

The results by such an analysis as the above are probably not accurate enough for foretelling the exact behavior of a commercial plant, but if studied in connection with Part 6 of this series, it appears that they can be relied upon to show the true function of "number of plates." One of the primary inadequacies of the methods presented herein is a lack of dependable equilibrium constants. Until this deficiency is corrected, the use of hair-splitting types of computations is entirely unjustified. In the next paper of this series a brief comparison of the various equilibrium data that are available will be presented.

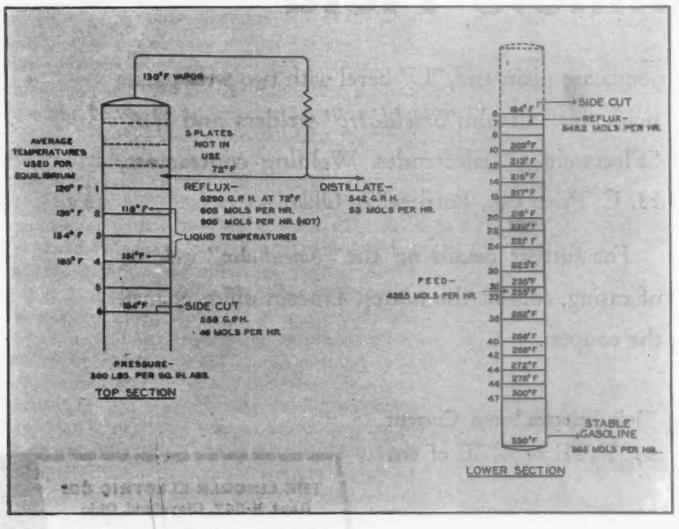



*Fig. 10—Natural gasoline stabilizer*

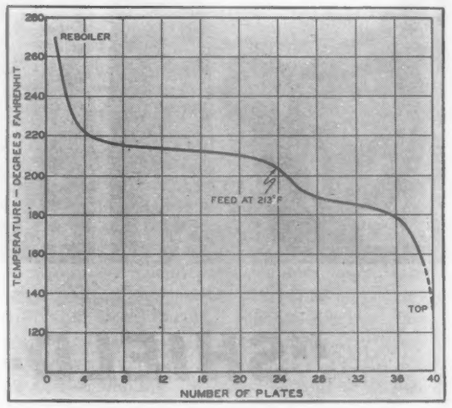



*Fig. 11—Temperature distribution in a 40-plate tower*

### References

1. Nelson, W. L.—Simplification of Fundamental Equations, The Oil and Gas Journal, page 44, Aug. 4, 1938.
2. Burdick—The Oil and Gas Journal, April 9, 1931

**TABLE 8—COMPOSITIONS OF STABLE GASOLINES**

| Component— | Feed stock | Compositions of gasolines when using— 10 plates | 20 plates | 40 plates | 50 plates |
|---|---|---|---|---|---|
| Methane | 0.1 | 0 | 0 | 0 | 0 |
| Ethane | 1.5 | 0 | 0 | 0 | 0 |
| Propane | 12.1 | 0.14 | 0 | 0 | 0 |
| i-Butane | 8.8 | 3.76 | 0.5 | 0.07 | 0 |
| n-Butane | 29.3 | 30.02 | 26.7 | 15.31 | 15.12 |
| i-Pentane | 5.6 | 7.66 | 8.45 | 9.82 | 9.88 |
| n-Pentane | 12.5 | 17.10 | 18.9 | 21.93 | 22.02 |
| Hexane plus | 30.1 | 41.32 | 45.45 | 52.87 | 52.98 |
| Yield-mol, per cent | .... | 73.0 | 66.2 | 57.0 | 56.8 |
| Vapor pressure: (True at 100° F.), lbs. per sq. in. | .... | 24.98 | 21.16 | 15.95 | 15.88 |

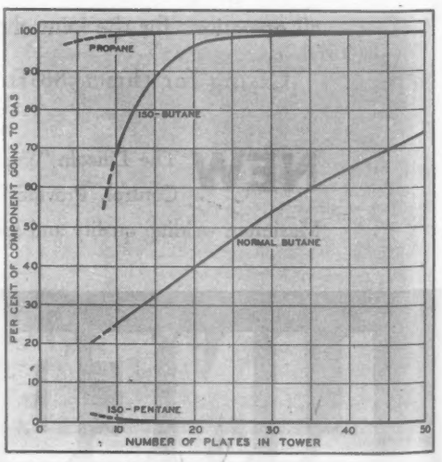



*Fig. 12—Percentage elimination of light components as a function of the number of plates in a fractionator*

# "FIELD TESTED" Lufkin

CHECK THESE *Prerequisites* BEFORE PURCHASING

1. Herringbone gears . . . quiet, efficient, with strength in abundance and designed for maximum compactness.
2. Large, oversize bearings, adequate to withstand the severe shocks of variable pumping loads.
3. Positive and efficient lubrication to all working parts.
4. Center-line beam motion to insure greatest possible efficiency and uniform polish rod motion.
5. Counterbalance crank of Rotary type—simple, rugged and easily adjustable to correct position.
6. Field service to supervise and check installations—to insure complete operating satisfaction.

**"FIELD TESTED"** means more than the building of one or two units for trial purposes!

**"FIELD TESTED"**, in the Lufkin sense of the word, means close observation throughout the years . . . of thousands of Lufkin Units and the correction of the slightest imperfection.

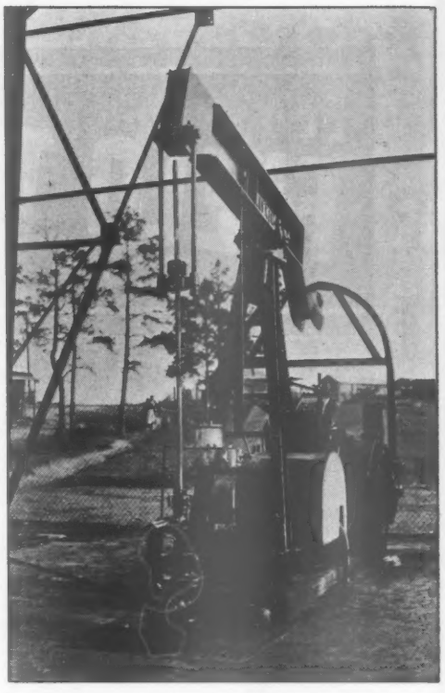
**LUFKIN ENGINEERS** and Lufkin Service-men work very closely with the men in the industry, striving constantly to foresee improvements far in advance of actual requirements.

# LUFKIN PUMPING UNITS

LUFKIN UNITS are manufactured in Lufkin, Texas, by the Lufkin Foundry & Machine Company. Branches in principal oil centers

# PUMPING PROBLEMS IN EAST TEXAS FIELDS

By Robert M. Bass
Sinclair Prairie Oil Co.*



*An open-type 15-hp. motor-driven pump near the east side of the field. Note the protective hood over the motor*

The question of pumping wells or obtaining oil from wells by means other than natural flow is ever before us who are most intimately associated with the East Texas field because of several reasons. First, because there are over 25,000 wells now in the field. Of that 25,000 wells, there are less than 6,000 now producing by means other than natural flow which leaves some 19,000 yet to equip with artificial means of production. Second, because new methods of producing, new equipment being introduced and an ever increasing amount of data being obtained regarding the field pertaining to amount of fluid to handle, length of time well will produce after it begins making water, or whether production can be obtained by means other than pumping, etc. This makes it almost necessary for the producer who is fortunate enough to have no wells pumping at this time to be on the alert as to the methods of producing oil in East Texas after the natural flow ceases.

George L. Nye and E. B. Miller, Jr., prepared and delivered before the East Texas chapter of the American Petroleum Institute in May, 1937, a paper entitled "The Present and Future of Pumping in the East Texas Field." In this paper Mr. Nye and Mr. Miller stated that the physical characteristics of the East Texas field are such that for the purpose of discussion the field would be divided into three parts: the east side, the middle, and the west side.

Now, a year and one-half later, this division becomes a necessity for actual pumping as well as for a purpose of discussion. Let us examine the field very briefly as a whole, and you will readily see why pumping wells are so very different in three or rather two different parts. The middle is somewhat characteristic of both the east side and the west side. On the west we have the water drive encroaching farther east each year until now approximately 60 per cent of the entire field is underlaid by water. Wells are being put on pump daily because of this water encroachment. On the east side we have wells being put on the pump also, but not because of water. These wells are being put on the pump because of a lower bottom-hole pressure and a declining fluid level. Since we have water on the west side of the field and no water on the east side, it is obvious why the pumping conditions are so very different. The production of oil on the west side of the field after the well stops flowing is going to be very difficult and expensive. At this time, the wells in the middle of the field have a tendency to be characteristic of those on the east side, but later during the life of these wells in the middle, they will in all probability resemble those on the west side. For that reason the producer whose wells are in the middle portion of the field can and will in all probability resort to other means of producing oil other than pumping for some time.

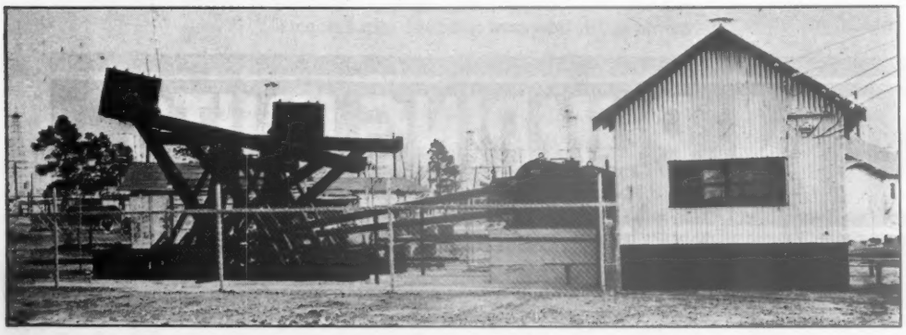
**A. P. I. — First half of paper presented before East Texas chapter, American Petroleum Institute, Kilgore, Tex., Oct. 11.**

### Same Conditions Throughout Entire Field

The condition of the bottom of the well itself is perhaps the most important item in a pumping well. There is a similarity regarding the condition of one well to another in the entire East Texas field. The most important thing in a pumping well is to be sure that the well itself is in condition to pump. By that it is meant to be sure that the fluid itself can get into the well bore, that the surface of the sand from which the fluid comes into the well is open and free from mud and cavings. Many failures in the field for wells not pumping efficiently have been caused by this condition existing in the bottom of the well rather than the failure of the mechanical pump itself. The productive sands in the East Texas field are of different thickness from 150 feet on the west side to a few inches on the extreme east side. All of the sand on the west, however, does not contain oil, in some instances only a few inches of oil being in the upper part. The sands are variable in hardness, with the hardest occurring in the east side. Notwithstanding the variable degree of hardness, cavings of sand and shale do collect at the bottom of the well in the entire East Texas field. That does not mean, however, that every well will cave bad enough so that the well cannot be produced successfully by pumping without cleaning out and perhaps a liner being run.

A great majority of the wells in the East Texas field have been completed in the following manner: By drilling into or near the base of the Austin chalk with rotary tools setting and cementing the oil string at this point, then waiting until the cement has set and drilling into or through the sand with a reduced hole and leaving this hole below the oil string open. By a study of core records and electrical surveys over the entire field, shale streaks, ashy sands, loose conglomerate, red beds, etc., have been found. Formations that will cave have been found to exist in some form in practically every well. Some operators have set a perforated liner in their wells after drilling into the sand before the well was ever swabbed in and put on production, thereby having something to hold back the cavings. Others of late have been drilling to a predetermined depth and setting the oil string entirely through the sand, later gun perforating opposite the producing sand. The two latter methods will, beyond all doubt, prove to be the better

*Author's title, "Observation of Pumping Problems and Equipment in the East Texas Field."



*A four-well hook-up using a 30-hp. normal torque constant-speed motor*

Generating station of the Carter Oil Company at Beecher City, Illinois, containing a Cooper-Bessemer Type GAW gas engine generating unit rated 135 hp at 290 rpm.

# *In the Illinois Basin . . .* Carter Oil Company Chooses GAW's For Cheap Pumping Power

To Carter Oil Company, the light loads of the Illinois oil fields dictated well-pumping with gas-engine-generated electric power. They chose Cooper-Bessemer Type GAW gas engines for that task!

- Thus a modern producing company eliminates maintenance worries by using slow-speed, long-life gas engines . . . planning to pump as many as 32 wells with the cheap electrical power generated by one unit. Here's evidence that wherever pumping by means of electrical power is indicated, your own gas-engine generating units are by far the best means for producing it.

Oil production now demands low cost pumping . . . Cooper-Bessemer Gas Engines generate power for that job in a modern, flexible way! Why not investigate their possibilities on your leases?

## THE COOPER-BESSEMER CORPORATION

Mt. Vernon, Ohio — PLANTS — Grove City, Pennsylvania

25 West 43rd Street, New York City
Mills Building, Washington, D. C.
640 East 61st Street, Los Angeles, Calif.
201 East 1st Street, Tulsa, Oklahoma
631 Spring Street, Shreveport, La.
Magnolia Building, Dallas, Texas
529 M & M Building, Houston, Texas

method of completing a well in order to insure a more efficient pumping well. Most of the operators who completed wells by the method first mentioned are having to clean out their wells and run liners before the wells are equipped to pump. As the bottom-hole pressure declines and the fluid levels recede, cavings will accumulate faster, and it is reasonable to believe that all wells completed by the first method will have to be equipped with a liner. While the wells were flowing, since they did not have some means of holding back cavings, cavities were bound to occur. This will cause caving to continue, in some cases necessitating additional cleaning out.

### Servicing of Wells

The servicing of wells, that is, pulling the rods and tubing, is the same throughout the field. Since the average depth of the entire field is around 3,600 feet, the same pulling units together with the equipment can be used in all parts of the field. Practically every well that is now pumping is equipped to be serviced with a pulling unit either of a tractor type or a skid type mounted on a truck. The wells are equipped for the tractor to set either on the derrick floor or to be anchored back away from the derrick and a floor block used at the derrick. The latter method because of having the unit back away from the well out of the way of oil spraying or flowing while servicing well is the better method because it eliminates the fire hazard. Because most wells flow in the East Texas field while the tubing and rods are being pulled, the problem in servicing is to have the well under control at all times in order to avoid a flow of oil out into the air thus causing a dangerous fire hazard. This problem is overcome by using a rod stripper on the tubing while pulling rods. The stripper consists of a device which screws into the tubing and has rubbers which can be adjusted tight or loosely against the rods while pulling. This prevents the well from flowing into the air if it does flow. A similar device which is attached to the casing and packs off against the tubing by rubbers is used while pulling tubing. This precaution should be taken while servicing wells in this field, except some on the extreme west side where the pressure of water in great quantities prevents the well from flowing. Fresh water can be put in the top of the casing in order to keep the well from flowing while servicing and has been done without any noticeable harmful effects to the well except having some bad oil when the well is put to pumping again.

### Gas Lift

There are 506 wells in the field reported producing by means of air and gas lift as of July 1, 1938. Although obtaining oil by this means is not pumping, nevertheless this discussion would not be complete without a few words about gas lift. Gas lift as used in this field consists of two principal methods: One, by using a small string of tubing inside the regular 2-inch or 2½-inch tubing and applying gas pressure to either string of tubing; the other, and perhaps the best, because of the improvements made with this equipment during the last few years, consists of flow valves being placed at various depths on the regular string of tubing. There are several different types suitable to various well conditions. The latter method of equipping wells is more expensive than the first but offers somewhat more control of the well while flowing. All wells in this field might be produced to depletion by gas lift. On the west side, because of the water that will be required to produce the well allowable, it will be economically impossible to flow wells throughout their producing period. On the extreme east side of the field, because of low fluid levels and small amounts of oil present in some wells, producing wells by gas lift probably cannot compete economically with pumping. Wells located towards the middle of the field because of a high fluid level and small amounts of water offer ideal conditions for the use of a gas lift at this time. This method of producing will be successful for a number of years.

### Paraffin—East Side of Field

By the absence of water, this part of the field offers very few problems that are causing any particular amount of trouble or anxiety to the experienced producers. However, this part of the field has some things to contend with that do not occur in wells on the west side where the wells are making water. Paraffin causes a great amount of trouble in wells on the east side. This is due to restricted production, and in all probability the presence of several known fresh water sands extending from the surface to a depth of nearly 1,400 feet. These sands carry cool water, and while the

*A 15-hp. high-slip motor installation near the center of the field on the west side. The control equipment is located at the left in a weatherproof cabinet, with the push-button station near the motor*

oil is standing in the casing and tubing, the paraffin has a tendency to congeal both on the sides of the casing and on the outside and inside of the tubing and around the rods. Some few cases have been reported that it was with some difficulty that the tubing was pulled out. For extreme cases of this kind, a mechanical scraper has been run on cable tools to clean the paraffin off the walls of the casing. Practically every well that is pumping on the east side of the field causes the operator some difficulty with paraffin while pulling rods.

### Use Paraffin Scraper

Numerous cases have been found where it was impossible to get the pump or traveling valve back to the bottom of the hole after pulling the rods in the well. This is remedied by several different methods. One method is to run a paraffin scraper on the sucker rods or swab line and merely scrape out the paraffin. Other means that have been resorted to in some extreme cases is to pull perhaps 1,500 feet of the tubing and clean out the tubing by the application of steam inside. There are several paraffin solvents on the market now which the manufacturer of these chemicals claim by periodical treatments given by putting the chemical in the top of the casing and later pumping out through the tubing will eliminate entirely this trouble caused by paraffin. These are being used with marked success in some wells in the field. This cleaning out and eliminating paraffin by this means serves a two-fold purpose; that is, keeping the well cleaned out and also cleaning out the flow lines to the tank battery.

Paraffin also gives trouble to the well servicing crews. Rod elevators and tubing elevators have become gummed up with paraffin especially during cold weather until they could not let the latches of the elevators function properly. Rods have been dropped and even tubing has been dropped in the well by allowing an excessive accumulation of paraffin on the tools. This should be given the attention of everyone servicing wells especially in this area.

### Pumps—East Side

The choice of pumps and their efficiency used on the east side seems to be a matter of opinion of the operators. Both 2-inch and 2½-inch sizes are being used; the 2-inch is large enough to handle the volume of fluid. Some operators are equipping their wells with 2-inch insert pumps and pumps put in several years ago are still running and giving good service at this time. One group of wells was equipped with common 2½-inch working barrels and standing valves in the bottom of the working barrel with four cup traveling valves in 1932. Now, six years later, these wells are still producing without ever having the rods pulled and cups changed. By these two different examples it is impossible to recommend one kind of pump above another. Tubing and rods also, because there is no water to handle in this area, so far have given very little trouble. Some wells are equipped with seven-eighths-inch rods and others are equipped with three-quarters-inch rods. The three-quarters-inch rods are perhaps the best because of the depth of the wells. Five-eighths-inch rods are not recommended by the manufacturer for 3,600-foot wells because of their not having the tensile strength required.

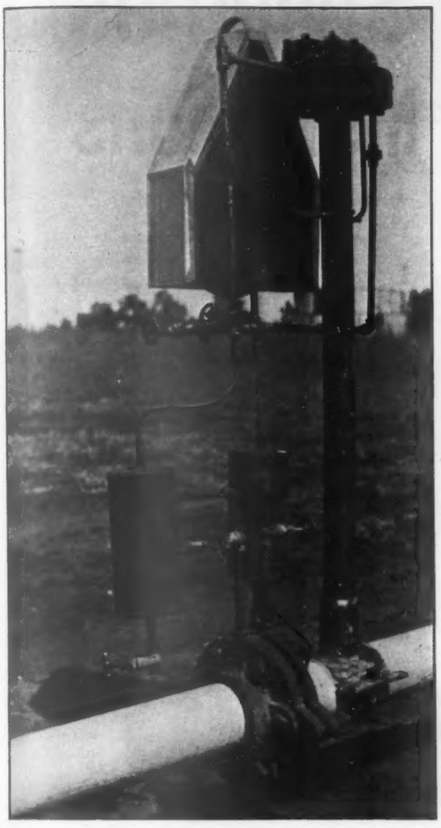
### Surface Equipment—East Side

There is now installed in this area and in operation at this time practically every known kind of pumping equipment that has ever been manufactured from the crudest to the latest of single geared units, geared and band wheel powers and elaborate multiple well hookups. Each seems to be doing the work required of it. The guiding factor in the selection of pumping equipment on the east side of the field seems to be the cost of the different kinds of equipment and its adaptability to the operator's needs.

The operators who have a group of wells located in such a manner that they may be pumped from a central power usually use this kind of equipment because it is more economical to install and cheaper to operate because of a fewer number of engines to keep in operation. These central powers are of both geared and band wheel type with the geared powers predominating. They are usually of the 100-hp. type, 36-inch stroke, powered by from 90 to 130-hp. gas engines and electric motors. Another reason for this type of equipment gaining in favor is due to the vast improvement made in the last few years in pumping jacks, safety well hook-offs, swings, holdups, holddowns, rod line carriers, etc. Particular attention should be paid to the proper location of the central power in regard to the wells that are to be pumped so that the power may be properly balanced; that is, the weight should be evenly distributed on all sides so that peak loads and strains may be eliminated as far as possible from the engine and geared power itself. However, with swings, it is possible to balance to a certain degree of accuracy wells in most any position. This, however, will be additional cost to the installation. Both seven-eighths-inch and 1-inch pull rods are being used as surface rods.

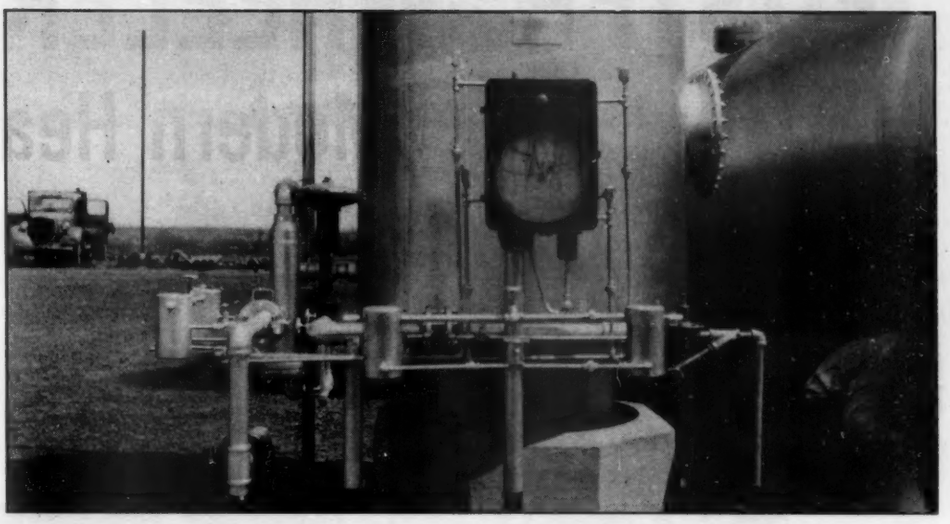
*(To be continued in an early issue)*

# OPERATING IDEAS



## Meter Equipment

Two expansion-chamber separators, made from 12-inch sections of 4-inch pipe, with welded ends, are installed on the leads connecting an orifice-type meter to the gas line. As a result there is a leveling of inertia peaks such as occurred in former recordings. With a more uniform curve, the amount of gas passing the plate could be more accurately determined. Gas enters the chamber high up on one side and is conducted through a downward-pointing elbow within the chamber which directs the flow down toward the bottom of the chamber, the sudden impulses common to field gas streams are eliminated in the expansion space and at the same time slugs of gasoline or light oil are separated and allowed to collect in the bottom of the chamber, from which they can be drained at the convenience of the chart-snatcher. Clearing of the recorder lines of liquid slugs through the separator action of the chambers was found to prolong the life of the recording gauge. Mounting of the meter mechanism on the pipe support (clamped to the gas line with heavy U-bolt) also relieves the connections of expansion strains which are sometimes encountered when the meter mounting is independent.

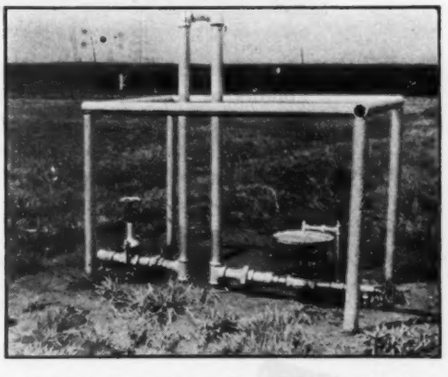


## Trap for Orifice Meter

Orifice meters do not function properly when condensed moisture is coming through the line. If correct readings are to be obtained, it is important that this moisture be removed. An operator in the K.M.A. field of Texas eliminates this trouble by placing traps on lines leading to the meter as shown in the picture.

## Spacing Drill Pipe Protectors

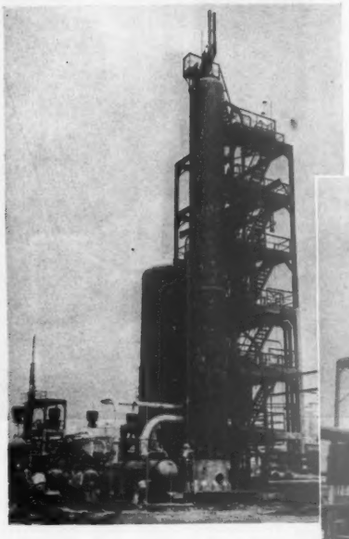
Location of the rubber protectors about a foot above the tool joint and using the spinning line below it provides a better grip for the line while making up pipe and at the same time does not reduce the effectiveness of the protectors. When the protectors are placed just above the tool joint, the spinning line must be placed above it and strain on the line pulls the stand from the vertical and causes wear on the tool joint thread as well as making the pipe difficult to spin up. Running the spinning line around the protectors is injurious to them as it frequently tears the rubber or causes the protector to move.

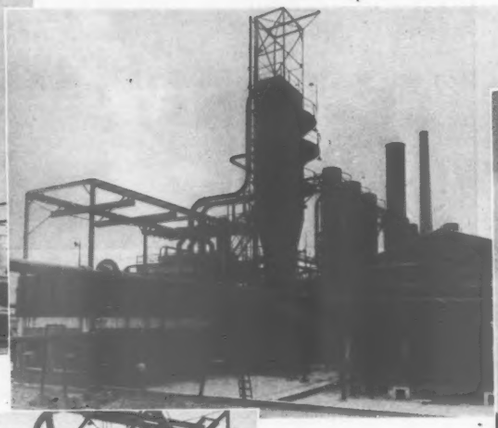


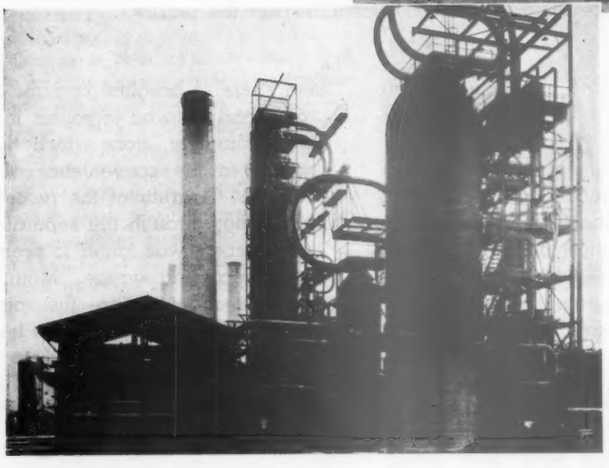
## Protection for Gas Regulator

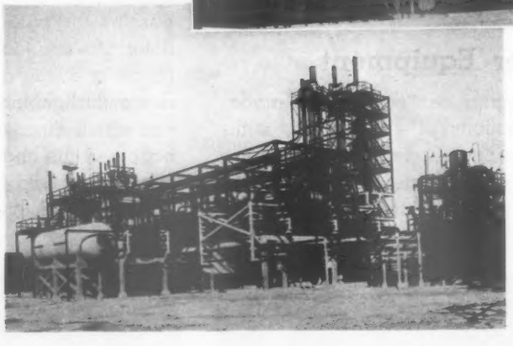
This trap and regulator on a gas line is very near the drive leading to the lease office and warehouse. Automobiles backing away from the platform came close to it several times. To prevent anyone from running over it and to make it more noticeable, the superintendent had this small enclosure made from old 2-inch pipe. This was found in the Ramsey, Oklahoma, field.

# FOSTER WHEELER Specifies Modern Heat Insulations









In these Foster-Wheeler-built plants . . . in the plants of leading oil companies in every oil-producing section—CAREY Heat Insulations are proving highly profitable investments. They pay big dividends by improving working conditions—by reducing operating costs.

In addition to high efficiency insulations, CAREY offers the practical knowledge gained through actual contact, during more than fifty years, with every type of insulation problem. CAREY service is available through a nationwide organization. Write Dept. 34 for Insulation Catalog.

**THE PHILIP CAREY COMPANY • Lockland, Cincinnati, Ohio**

*Dependable Products Since 1873*

BRANCHES IN PRINCIPAL CITIES

Carey Maqnesia-Asbestos HEAT INSULATIONS

# QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

## Analysis of Rock Creek Wyoming Crude Oil Sundance Sand

**Your kindness will be much appreciated if you will give us an analysis of the representative oil from the Rock Creek field of Carbon County, Wyoming.—P. B. R.**

The U. S. Bureau of Mines report initial production was obtained in May, 1918, in the Rock Creek field from the Muddy sand at 2,581 to 2,609 feet. In June, 1935, additional oil was found at 3,096 to 3,200 feet, Sundance sand. The analysis represents a sample from the Sundance at 3,188 feet, Ohio Oil Co. No. 5 Diamond Cattle.

OIL FROM ROCK CREEK, WYOMING

| | |
|---|---|
| Gravity, A.P.I. | 36 |
| Pourpoint, °F. | 20 |
| Sulfur, per cent | 0.16 |
| S.U. vis. at 100° F., sec. | 43 |
| Color | Greenish brown |

| Distillation: | Per cent | Grav., A.P.I. |
|---|---|---|
| Gasoline | 31.4 | 58.9 |
| Kerosene | 4.4 | 41.9 |
| Gas oil | 18.0 | 36.6 |
| Nonvis. lube dist. | 11.2 | 33-28.9 |
| Medium lube dist. | 7.4 | 28.9-25.7 |
| Viscous lube dist. | 1.8 | 25.7-25 |
| Residue | 23.8 | 15.9 |

The Bureau of Mines reports 42 wells, of which 35 are from the Muddy and Dakota sands and seven from the Sundance. The daily production is about 1,200 bbls.

Reference: U. S. Dept. Interior, Bureau of Mines, R.I. 3358, Dec. 1937.

## Fuel Oil, Light Fuel Oil, and Distillate Defined

**I am interested in obtaining information showing the meaning of these terms: Fuel oil, light fuel oil, and distillate.—A. O.**

When making a general classification, any petroleum oil suitable for use as a fuel may be designated fuel oil. The quality is usually fixed by specifications which have been devised to control the type of oil best adapted for the intended purpose and the burning equipment. In a very broad way fuel oils are of two kinds, heavy oils and light oils. The heavy fuel oils are usually the residual, black, liquid product remaining after the other components have been removed from the crude oil by the refining operation. These oils are widely consumed in the industries, locomotives, and steamships.

The light oils have a higher A.P.I. gravity than the industrial fuel oils, usually quite light in color, from straw color to brown, and are composed of distillates ranging through the kerosene and gas oil to low-viscosity lubricating oil fractions. They are largely consumed in domestic heating plants and for this reason are often termed domestic fuel oils.

Distillate is a name sometimes applied in the trade to mean domestic fuel oils. The technical meaning is that a distillate is any portion of petroleum which is separated by means of the distillation process.

Fuel oils, both industrial and domestic, are required by Federal Specifications, and by law in most states, to have a minimum flash point of 150° F.

The American Society for Testing Materials has adopted this definition for fuel oil: Any liquid or liquefiable petroleum product burned for the generation of heat in a furnace or firebox, or for the generation of power in an engine, exclusive of oils with a flash point below 100° F., Tag closed tester, and oils burned in cotton or woolwick burners. Fuel oils in common use fall into one of four classes: (1) Residual fuel oils, which are topped crude petroleums or viscous residuums obtained in refinery operations; (2) distillate fuel oils, which are distillates derived directly or indirectly from crude petroleum; (3) crude petroleums and weathered crude petroleums of relatively low commercial value; (4) blended fuels, which are mixtures of two or more of the three preceding classes.

## Inspection of Insecticide Used For Sprays in Households

**What are the specifications for the petroleum sprays used as insecticides for household use?—A. P. L.**

There are no specifications for insecticidal sprays covering the liquid portion that are related to petroleum except a corrosion test and a flash test. The liquid shall not corrode metals and shall have a closed-cup flash point not less than 125° F.

The general requirements of the liquid spray type household insecticide known as Commercial Standard CS72-38 include:

Killing power. Peet-Grady method for three grades: AA, +16 or greater; A, +6 to +15; B, —5 to +5. The test insect is the house fly, which is exposed to 12 ml. of the sample for 10 minutes and the percentage kill determined after 24 hours.

Stain: Shall not stain fabrics, wall paper and general household furnishings.

Odor: No objectionable odor. Shall not contaminate closed packages of food materials.

Reference: National Bureau of Standards, "Household Insecticide." U. S. Government Printing Office, Washington, D. C.

## CHEMICALS FOR THE PETROLEUM INDUSTRY

**Sodium Alum**

**(Aluminum Sodium Sulfate)**

Use—Purifying water.

Form—Colorless crystals and powder.

Formula—$Al_2(SO_4)_3 . Na_2SO_4 . 24H_2O$.

Molecular weight—916.57.

Specific gravity—1.675.

Melting point—142° F.

Solubility—Soluble 103 parts in 100 parts cold water.

LIMITATIONS

| | |
|---|---|
| Iron | trace |
| Insoluble, max. per cent | 0.01 |
| Purity, min., per cent | 99.00 |

## Quality of Gasoline as Indicated by Volatility or Distillation Points

**When judging the quality of several gasolines, what distillation temperatures should be required to cover proper volatility for ease of starting and to control the tendency to gas lock? Should these requirements include an initial boiling point, 10 per cent point, and 50 per cent point?—N. G. M.**

Volatility of motor fuel is indicated by the entire range of temperatures of distillation as found by the standard method adopted for the distillation test. Easy starting is related to the initial boiling point and the 10 per cent. It is quite generally agreed that the initial boiling point should not be closely specified because it is difficult to obtain the same temperature when making two or more tests, largely due to the fact that some of the most volatile constituents are easily lost and the slight variations that are possible under the conditions of test. The ease of starting is more satisfactorily controlled by the 10 per cent point; also, it is important as related to any vapor tendency.

Satisfactory acceleration, including the warming-up period, is an important interpretation of the 50 per cent temperature. It has to be considered with the 90 per cent point, indicating dewpoint, which is used for determining the temperature that should exist in the manifold and in a broad way covers the actual service value. When the 50 per cent point is high, the 90 per cent point will usually be high and a gasoline of this quality will probably cause excessive crankcase dilution.

The 10, 50, and 90 per cent points are not liable to vary much when properly determined by different analysts or when duplicate tests are made.

The National Bureau of Standards has suggested that satisfactory starting performances, 10 revolutions of the engine in cold weather, may be obtained by the use of gasoline meeting the 10 per cent evaporated requirement according to atmospheric temperatures given in the table.

STARTING QUALITY OF GASOLINE

| Temperature °F. | Satisfactory starting 10% point max. |
|---|---|
| —20 | 97 |
| 0 | 127 |
| 20 | 160 |
| 40 | 190 |

The 10 per cent point will suggest any possible tendency toward vapor locking but the Reid vapor pressures are more reliable indicators. While the technologists do not agree, several authorities have suggested the limits shown in the table.

VAPOR PRESSURE AND VAPOR LOCK

| When atmospheric temperature is (°F.) | Vapor pressure lbs./sq. in. |
|---|---|
| 50 should not exceed | 14 |
| 60 should not exceed | 12 |
| 70 should not exceed | 11 |
| 80 should not exceed | 9.5 |
| 90 should not exceed | 8 |
| 100 should not exceed | 7 |

It should be noted that under low atmospheric temperature conditions the pourpoint and viscosity of the lubricating oil used in the engine and the condition of the battery have much to do with starting.

# PROBLEMS FROM READERS

*Edited by L. G. E. Bignell*

## Sulfate-Resisting Cement

**Can you give me any general information about cement suitable for use in and around oil wells making salt and sulfur waters such as found in drilling many wells in Illinois?—E. V. N.**

At a recent meeting of the A.I.M.E. Svend Rordam, director of research, and Cedric Willson, research engineer for the Trinity Portland Cement Co., of Houston, Tex., presented the following paper upon this subject which it is hoped will answer your question.

The question of developing a cement which would be resistant to the destructive action of sea water and other corrosive waters is a problem which has occupied cement chemists for the past 100 years.

It was found that of the various salts which commonly occur in corrosive waters, the sodium sulfate, the magnesium sulfate, and the magnesium chloride were most destructive to cement.

Many investigations have been carried out in the United States, in Canada, and in Europe to solve the problem of what constitutes a sulfate resistant cement, and during the past 10 years some of the findings give definite information in this respect.

Portland cement is composed of four major compounds:

1. Tricalcium silicate, $3CaO.SiO_2$ ($C_3S$)
2. Dicalcium silicate, $2CaO.SiO_2$ ($C_2S$)
3. Tricalcium aluminate, $3CaO.Al_2O_3$ ($C_3A$)
4. Tetracalcium aluminoferrite, $4CaO.Al_2O_3.Fe_2O_3$ ($C_4AF$)

The two calcium silicates are the main strength contributors. The tricalcium aluminate contributes some to the early strength of the cement but is the compound which has the least resistance towards the attack of sulfate waters. The tetracalcium aluminoferrite does not contribute very much to the strength of the cement but is far more resistant to sulfate waters than the tricalcium aluminate.

When hardened cement is exposed to water containing sodium or magnesium sulfates, these salts will react with the hydrated tricalcium aluminate in the cement and form compounds which will cause a swelling, disruption, and crumbling of the hardened cement.

It has now been established that a cement having from 0 to 3 per cent tricalcium aluminate may be termed practically immune to the attacks of sulfate solutions, but when the tricalcium aluminate content exceeds 4 to 5 per cent, failures can be expected. For the construction of the Colorado River Aqueduct, the cement specifications limited the tricalcium aluminate to not over 4 per cent, with the tricalcium aluminate plus tetracalcium aluminoferrite not over 12 per cent. The federal specifications for a sulfate-resisting cement (SS-C-211, Sept. 30, 1936) specify that the tricalcium aluminate must not exceed 5 per cent, and the ratio of alumina oxide to iron oxide shall be between 0.7 and 2.0.

Corrosive sulfate salts are found in natural ground waters encountered in drilling oil wells in many fields and, consequently, their effect on the cement slurry used for oil-well cementing has been the subject of considerable thought and study during the past three years.

The rate of attack on hardened cement slurry by solutions of sodium sulfate and magnesium sulfate is governed to some extent by the concentration of these salts in the water. However, for both compounds, a limiting concentration exists beyond which a further increase only raises the rate of attack slightly.

The approximate limiting concentrations are:

Sodium sulphate, 1.0 per cent, or $SO_4$ : 6,800 p.p.m.
Magnesium sulphate, 0.5 per cent, or Mg : 1,000 p.p.m.

Analyses of waters from oil wells and slush pits show that highly corrosive waters can be expected in many areas. It must also be borne in mind that although an average of the water from a well may indicate it is not particularly corrosive, it is quite possible some of the strata encountered may be carrying highly corrosive waters which may be injurious to the cement if proper precautions are not taken.

Temperature has an important effect on the resistance of hardened cement to the destructive action of sulfate solutions. Several investigators have observed that high-temperature curing of cement specimens will greatly increase their resistance. In connection with the construction of the Colorado River Aqueduct, L. H. Tuthill, testing engineer for the Metropolitan water district of southern California, carried out a series of tests exposing specimens of 1:3 plastic mortar to the action of 10 per cent sodium sulfate solutions at 70° and 160°. In all cases it was found that sulfate solution was more destructive at the lower temperature, and Tuthill made the direct observation that an increase of the temperature of the corrosive solution decreased the corrosive action.

This observation, which is the opposite of what might be expected, has been confirmed by a series of tests made in our laboratory.

Another reference to this same subject of resistance of cement to corrosion is quoted from an article on "Properties of Cements," by the late S. G. S. Panisset, formerly chief chemist for the Associated Portland Cement Manufacturers, Ltd., and published in Volume 1 of "The Science of Petroleum."

Cements are essentially calcareous and have little resistance to acid attack, and this implies that cement concrete in contact with acids or with materials likely to develop acid properties is liable to corrosion. Animal and vegetable fats, beer, cider, milk are examples of materials which may develop an acid reaction. In addition, sugars have a disintegrating effect on cement, owing to the solubility of lime in sugar solution. When a dense concrete is made by using suitable proportions of cement and water with properly graded sand and aggregate, the corrosive action of acids is confined to the surface, and with weak organic acids the rate of disintegration is slow. But where the acid liquid can penetrate the concrete, the life of the latter is necessarily short. This vulnerability to acid attack does not limit the use of concrete for constructional purposes, but merely calls for some surface protection, of which asphalt is a popular example.

Portland cements are also subject to chemical attack by sulfate solutions such as occur in sea-water and in certain soils. The mechanism of the action is that tricalcium aluminate present in cement combines with calcium sulfate to form calcium sulphoaluminate ($3CaO\ Al_2O_3\ 3CaSO_4\ 31H_2O$) with an increase in volume sufficient to disintegrate concrete. The calcium sulfate for this reaction need not be originally present, but may be formed by interaction of lime (always present in set cement) and any soluble sulfate. The rate of destructive action by sulfate solutions is dependent on the strength of the latter and the permeability of the concrete. A dense concrete immersed in sea-water which contains from 0.2 to 0.5 per cent $SO_3$ has an almost indefinite life, but a permeable concrete in sea-water may show signs of attack in a few years. In soils which may contain stronger solutions of magnesium or sodium sulfates, the disintegrating action is more rapid. The protection of the concrete surface by an asphaltic or other bituminous cover is a remedy for sulfate attack, but aluminous and pozzolana cements are less liable to attack and may be preferable under certain circumstances. Aluminous cement does not liberate lime on setting and there are consequently not the conditions required to form the expansive calcium sulphoaluminate. With pozzolana cement the lime set free during setting of the portland cement constituent combines with the active silica of the pozzolana, and is thus not available for the formation of calcium sulfate.

Cement mortars and concretes are also liable to attack by certain moorland waters and other waters containing free carbonic acid. In the case of moorland water the action is one of simple solution of the hydrate of lime in the set cement. With a dense concrete or mortar the attack is superficial only, and years may elapse before there is any noticeable effect. If the concrete is permeable, as may happen with a dam which has cracked by shrinkage, considerably more lime can be removed from the cement by solution. There are many natural waters which contain bicarbonate of lime in solution, and these have a protective action on concrete, because interaction with the free lime in the latter forms a skin of carbonate of lime. There are, however, some natural waters containing free carbonic acid which causes removal of lime by solution as bicarbonate of lime. In both these cases of pure moorland water and of water containing free carbonic acid, the remedy is to be found in the use of aluminous or pozzolana cement where there is little or no lime hydrate available for attack.

Thin plates of hardened cement slurry were stored in 10 per cent sodium sulfate solutions at 70° and 200°.

The plates made of normal portland cement failed in 13 days at 70° but were in good condition after six months with the solution at 200°. Plates made of sulfate-resisting cement were in perfect condition after six months in 70° solution and the 200° solution.

While sulfate-resisting cements do not develop quite as much strength at early ages as high early strength or standard portland cements, at the later ages this type of cement has the greatest strength development due to its high content of tricalcium silicate and dicalcium silicate.

It appears that the need for a sulfate resistant cement is more important when corrosive waters are encountered at lower temperatures in shallow production than it is in the deep wells where temperatures may be as high as 200° or over. However, a cement which is resistant to the attacks of sulfate waters at low temperature is bound to be even more resistant at the higher temperatures.

# FIELD OPERATIONS

## Summarizing the Week's Developments

**KANSAS**—The Bloomer pool, already productive in Barton and Ellsworth counties, has been extended into Rice County and to within 1 mile of the Habiger pool. A pool opener in Section 9-33-6, Cowley County, was near completion. The South Gurney pool in Russell County was extended one-fourth mile westward. The Evans pool in northern Woodson County was extended across the line into Coffey County.

**OKLAHOMA**—The deep oolitic lime zone in the Fox field, Carter County, was extended a location southward. Four other wells are drilling toward the deep pay in that area. Work has been resumed at an old Wilcox sand failure north of Norman, Cleveland County, in an effort to develop upper Simpson production. A deep test in the Chickasha gas field, Grady County, had showings of oil around 4,125 feet, and was drilling ahead.

**NEW MEXICO**—The continually expanding Vacuum pool in Lea County, New Mexico was extended easterly by two good wells in Sections 26 and 27, Townships 17-35.

**TEXAS**—Another deep producing field was opened in Galveston County at a total depth of 9,197 feet. A distillate pool was uncovered in the South Anahuac area, Chambers County. A deeper pay was found in the Palacios pool in Matagorda County. In North Texas the new Canyon pool in Wichita County was extended southerly into Archer County. New producing horizons were found in two Young County pools. In West Texas the Tubbs pool in Crane County, Deep Rock pool in Andrews County and Harper pool in Ector County were extended. In Southwest Texas the McCampbell pool in San Patricio County was lengthened a mile southerly.

**LA-ARK-TEX**—Gas and distillate discoveries in the three states of Texas, Louisiana and Arkansas, featured the news from the tri-state area. Saturated sand was found at 7,998 feet in a deep test in the old shallow Carterville gas field in Webster Parish. The Shreveport area received a setback when a well located half a mile south of the discovery well turned out to be a gas producer in the Pettit limestone.

**KENTUCKY**—Seven wells were completed in the Birk City pool in Henderson and Daviess counties with initial production 1,980 bbls. Deep tests will be drilled in Henderson County, one 20 miles from the Birk City pool and another across the Ohio River from Evansville.

**EASTERN FIELDS**—A 300-bbl. well was completed in the old Greene County district in southwestern Pennsylvania, in sand at 3,130-35 feet.

**OHIO**—A 50-bbl. well was completed in the city of Cleveland 1 mile from the public square and at the junction of the Cuyahoga River and Lake Erie.

**CALIFORNIA**—The best well of the week in California was good for 1,150 bbls. initially. It was completed in the Rio Bravo field in Kern County at 11,523 feet.

**ILLINOIS**—The largest number of wells completed in one week in the Illinois basin field was last week's record of 94.

## Completions in All Fields

(Week Ending October 22, 1938)

| | Oil | Gas | Dry | Total | 1938 total comp. to date | 1937 total comp. to date |
|---|---|---|---|---|---|---|
| N. Y., Pa., and W. Va. | 40 | 18 | 4 | 62 | 2,952 | 3,772 |
| Ohio | 5 | 6 | 2 | 13 | 792 | 964 |
| Indiana | 0 | 0 | 0 | 0 | 101 | 87 |
| Kentucky | 17 | 7 | 0 | 24 | 735 | 536 |
| Illinois | 80 | 1 | 13 | 94 | 1,386 | 199 |
| Michigan | 15 | 1 | 7 | 23 | 726 | 647 |
| Kansas | 31 | 0 | 8 | 39 | 1,316 | 2,133 |
| Oklahoma | 18 | 5 | 8 | 31 | 1,403 | 2,212 |
| Texas: | | | | | | |
| North Central Texas | 24 | 1 | 11 | 36 | 2,560 | 2,307 |
| West Texas | 28 | 0 | 1 | 29 | 1,598 | 2,194 |
| Texas Panhandle | 11 | 2 | 1 | 14 | 466 | 635 |
| East Texas | 21 | 0 | 0 | 21 | 1,533 | 1,933 |
| East Central Texas | 3 | 1 | 3 | 7 | 289 | 587 |
| East Texas Border | 0 | 1 | 0 | 1 | 112 | 282 |
| Gulf Coast Texas | 14 | 1 | 2 | 17 | 1,071 | 1,272 |
| Southwest Texas | 29 | 0 | 17 | 46 | 1,735 | 2,676 |
| Total Texas | 130 | 6 | 35 | 171 | 9,364 | 11,886 |
| North Louisiana | 3 | 1 | 7 | 11 | 523 | 538 |
| Gulf Coast Louisiana | 9 | 1 | 1 | 11 | 394 | 370 |
| Total Louisiana | 12 | 2 | 8 | 22 | 917 | 908 |
| Arkansas | 3 | 1 | 0 | 4 | 106 | 132 |
| Montana | 1 | 0 | 2 | 3 | 91 | 188 |
| Wyoming | 3 | 0 | 0 | 3 | 129 | 89 |
| Colorado | 0 | 0 | 0 | 0 | 10 | 17 |
| New Mexico | 11 | 0 | 2 | 13 | 460 | 594 |
| Utah | 0 | 0 | 0 | 0 | 2 | 3 |
| California | 17 | 0 | 4 | 21 | 1,058 | 1,242 |
| Total United States | 383 | 47 | 93 | 523 | 21,638 | 25,609 |
| Total previous week | 352 | 46 | 121 | 519 | | |
| Difference | 31 | 1 | 28 | 4 | | |

## Outstanding Fields--Highlights

(Week Ending October 22, 1938)

| FIELD— | Rigs up | Wells drlg. | Weekly oil completions | Initial prod. | Total No. oil wells | Daily av. prod. |
|---|---|---|---|---|---|---|
| **TEXAS** | | | | | | |
| K.M.A. | 37 | 43 | 8 | 6,805 | 834 | 15,699 |
| Wasson-Bennett | 9 | 38 | 5 | 3,806 | 151 | 8,139 |
| Ector County | 7 | 63 | 10 | 10,736 | 1,324 | 42,196 |
| Winkler County | 6 | 14 | 5 | 5,690 | 1,715 | 35,697 |
| Howard-Glasscock | 4 | 25 | 0 | 0 | 1,016 | 14,598 |
| East Texas | 12 | 27 | 21 | 1,031 | 25,735 | 369,850 |
| **OKLAHOMA** | | | | | | |
| St. Louis | 5 | 32 | 4 | 1,318 | 707 | 22,775 |
| Oklahoma City | 5 | 9 | 0 | 0 | 1,092 | 104,950 |
| **KANSAS** | | | | | | |
| Barton County | 4 | 27 | 6 | 2,232 | 373 | 9,987 |
| Stafford County | 3 | 15 | 6 | 1,778 | 189 | 4,573 |
| Rice County | 2 | 16 | 4 | 1,818 | 1,228 | 27,568 |
| Russell County | 2 | 24 | 4 | 2,762 | 1,149 | 20,674 |
| **NEW MEXICO** | | | | | | |
| Lea County | 10 | 84 | 10 | 1,291 | 1,894 | 97,510 |
| **LA-ARK-TEX** | | | | | | |
| Rodessa, La-Ark-Tex | 1 | 15 | 0 | 0 | 1,035 | 70,490 |
| Cotton Valley, La. (deep) | 2 | 19 | 1 | 75 | 95 | 10,555 |
| Schuler, Ark. | 0 | 23 | 2 | 1,775 | 106 | 18,130 |
| Jennings, La. | 2 | 14 | 1 | 168 | 124 | 24,687 |
| **MICHIGAN** | | | | | | |
| Overisel | 2 | 11 | 1 | 500 | 50 | 3,540 |
| **ILLINOIS** | | | | | | |
| Central Illinois | 57 | 376 | 79 | 20,397 | 1,363 | 76,282 |
| **CALIFORNIA** | | | | | | |
| Wilmington | 6 | 14 | 3 | 1,613 | 572 | 93,750 |
| **KENTUCKY** | | | | | | |
| Birk City | 3 | 27 | 7 | 1,980 | 81 | 3,263 |

# Illinois and Kentucky

By STAFF CORRESPONDENT

# 79 New Oil Wells in Basin; 118 Operations Are Started

MATTOON, Ill., Oct. 24.—Ninety-four completions and 118 new operations were reported from the fields of Illinois in the past week in review. Seventy-nine new oil wells in the Central basin fields with a total initial production of 20,397 bbls., and an oil well and a gas well in the old Lawrence County district in eastern Illinois, together with 13 dry holes in Jefferson, Richland, Cumberland, Coles, Washington, Christian, Clark, Fayette and Clinton counties completed the results of the week's developments. The 118 new operations included locations, rigs and drilling wells.

This week's completion record is supplemented by completions of the previous week that were unavoidably delayed. The initial production represents the first 24-hour output unless otherwise stated and was as follows:

### Fayette County

W. B. Johnson No. 1 Land Bank, NE SW SW Section 25-6n-2e, Weiler sand and salt water at 1,630-1,700 feet, Benoist at 1,780-1,810 feet, dry, total depth 1,820 feet, dry and abandoned. Rosenthal and others No. 2 Washburn, SE SE NW Section 30-6n-3e, Weiler sand at 1,600-22 feet, pumped 230 bbls. Smith & Sample No. 1 Garver, SE NW NW Section 30-6n-3e, Weiler sand at 1,609-22 feet, pumped 210 bbls. Texas Co. No. 1 Swarm, SE NE NW Section 30-6n-3e, Weiler sand topped 1,604 feet, salty sand from 1,622-41 feet, total depth, pumped 111 bbls. of oil and 20 bbls. of water. Ray Brown No. 5 Rosa Hopper, NE NE SE Section 12-7n-2e, Weiler sand at 1,504 feet, total depth 1,561 feet, pumped 110 bbls. Johnston and others No. 2 Welker, SE cor. NE NW NE Section 13-7n-2e, Weiler sand at 1,566-84 feet, pumped 45 bbls. of oil and 10 bbls. of water. Magnolia Petroleum Co. No. 2 T. C. Clow, NW NE NW Section 5-7n-3e, Bethel at 1,517-45 feet, flowed 102 bbls. through 2-inch tubing. W. B. Johnson Drilling Co. No. 1 Dial, Weiler at 1,555 feet, total depth 1,571 feet, shot with 40 quarts and pumped 125 bbls.

Carter Oil Co. No. 1 Ferguson, SE SW SW Section 7-7n-3e, Bethel sand at 1,606-14 feet, plugged back to 1,535 feet and shot with 40 quarts in Weiler sand at 1,513-34 feet, pumped 41 bbls. in 16 hours. Sherman and others No. 7 Burtschi, SE NE SE Section 18-7n-3e, Benoist sand at 1,593-1,603 feet, pumped 125 bbls. Sherman and others No. 8 Burtschi, SE NE SE Section 18-7n-3e, Cypress sand at 1,501-29 feet, pumped 75 bbls. Dixie Oil Co. No. 1 Arnold A, SE SE SW Section 19-7n-3e, Weiler at 1,563-78 feet, shot with 20 quarts. pumped 125 bbls. Mabee Drilling Co. No. 4 Morrison, SE NW SE Section 19-7n-3e, Weiler at 1,518-72 feet. pumped 143 bbls. Iotex Oil Co. No. 3 McKenzie, NE NW NE Section 29-7n-3e, Weiler at 1,535 feet, total depth 1,597 feet, pumped 220 bbls. Mabee Drilling Co. No. 4 Bank, SE NE SE Section 30-7n-3e, Weiler sand at 1,552 feet, total depth 1,580 feet, pumped 220 bbls. Mabee Drilling Co. No. 5 Bank, SE NW SE Section 30-7n-3e, Weiler at 1,557-80 feet, pumped 220 bbls. Texas Co. No. 1 Philbrook, NE SE SE Section 31-7n-3e, Cypress at 1,530 feet, total depth 1,565 feet, pumped 111 bbls. W. C. McBride, Inc., No. 2 Stokes A, SE SW NE Section 14-8n-3e, Weiler at 1,502-31½ feet, shot with 60 quarts, swabbed 240 bbls. Whisenant No. 7 Lilly, NE SW SE Section 16-8n-3e, Bethel sand at 1,566-88 feet, shot with 40 quarts, flowed 310 bbls.

Carter Oil Co. No. 2 J. T. Wright, NW NE NW Section 21-8n-3e, Bethel at 1,553-78 feet, shot with 60 quarts, flowed 272 bbls. Carter Oil Co. No. 1 Williams, NW NE NE Section 22-8n-3e, Bethel sand at 1,525-57 feet, shot with 50 quarts, flowed 124 bbls. Magnolia Petroleum Co. No. 3 Ollie Rhodes, SW SE SW Section 27-8n-3e, Bethel at 1,581-95 feet, pumped 120 bbls. Carter Oil Co. No. 2 Meyers, SE SW SE Section 29-8n-3e, Bethel at 1,533-63 feet, shot with 60 quarts, flowed 893 bbls. through tubing. Paul Doran No. 1 Goetting, SW NE NW Section 32-8n-3e, an old well deepened from 1,519 feet to Bethel sand at 1,556-59 feet, then plugged back to 1,554 feet, pumped 15 bbls. Paul Doran No. 4 Goetting, SE NW NW Section 32-8n-3e, Weiler at 1,462 feet, total depth 1,500 feet, pumped 200 bbls. Paul Doran No. 5 Goetting, SW NW NW Section 32-8n-3e, Bethel at 1,588-1,601 feet, shot with 50 quarts, flowed 200 bbls. W. B. Johnson No. 6 Goetting, NW NW NW Section 32-8n-3e, Weiler at 1,534-43 feet, shot with 40 quarts, pumped 125 bbls. Minerva Oil Co. No. 5 Tish. Bethel at 1,581-97 feet, pumped 120 bbls. Minerva Oil Co. No. 6 Tish, SW NW SE Section 33-8n-3e, Bethel sand at 1,578 feet, total depth 1,624 feet, pumped 125 bbls. Broadus & Snowden No. 1 Bank, NE SW NE Section 34-8n-3e, Weiler at 1,531-48 feet, shot with 20 quarts, pumped 50 bbls. Robert Garland No. 1 Miller. SE cor. SW Section 34-9n-2e, dry and abandoned at 1,856 feet.

Paul Doran No. 3 Goetting, SE NW NW Section 32-8n-3e, Bethel at 1,568-92 feet, pumped 185 bbls. after a shot. Magnolia Petroleum Co. No. 2 Rhodes, NW SE SW Section 27-8n-3e, Benoist at 1,554-70 feet, pumped 41 bbls. Carter Oil Co. No. 1 Hopper, NE NW NE Section 22-8n-3e, Benoist sand 1,499-1,521 feet, 1,240 bbls. after a shot. Carter Oil Co. No. 2 Durbin, SE SW SW Section 22-8n-3e, Benoist sand at 1,489 feet, total depth 1,520 feet, flowed 152 bbls. of oil and 29,800 feet of gas after a shot. Carter Oil Co. No. 1 Cummings, SW SE SW Section 22-8n-3e, Benoist 1,496-1,526 feet, flowed 125 bbls. of oil and 37,000 feet of gas after a shot. Whisenant and others No. 4 Lilly, SW SE SW Section 16-8n-3e, Benoist at 1,553-79 feet, flowed 312 bbls. after a shot. Carter Oil Co. No. 2 Edith Mullinger, SW NW NW Section 15-8n-3e, Benoist sand 1,594-1,614 feet, total depth, flowed 183 bbls. after a shot. Carter No. 1 Edith Mullinger, NW NW NW Section 15-8n-3e, Benoist sand 1,594-1,614½ feet, flowed 927 bbls. after a shot. Mabee Drilling Co. No. 2 Bank, NW NE SE Section 30-7n-3e, Benoist at 1,644-61 feet, plugged back to 1,574 feet and casing perforated, pumped 160 bbls.

Iotex Oil Co. No. 2 McKenzie, SE NW NE Section 29-7n-3e, Weiler at 1,531-78 feet, pumped 228 bbls. Sherman and others No. 6 Burtschi, NE SE SE Section 18-7n-3e, Weiler 1,484-1,540 feet, estimated at 200 bbls. after a shot. Burtschi No. 4 fee, SW SE SE Section 18-7n-3e, Benoist 1,572-90 feet, pumped 190 bbls. Carter Oil Co. No. 1 Williams, NW NE SW Section 7-7n-3e, Benoist at 1,584-1,605 feet, pumped 101 bbls. of oil and some gas after a shot. Sherman and others No. 2 Lay, C W half W half SW Section 6-7n-3e, Weiler 1,457-83 feet, pumped 160 bbls. Jarvis Brothers No. 5 Yokey, NE SW SE Section 6-7n-3e, Benoist 1,548-75 feet, pumped 180 bbls. Jarvis Brothers No. 3 Yokey, NW NW SE Section 6-7n-3e, Benoist at 1,557-68 feet, flowed 128 bbls. Magnolia Petroleum Co. No. 1 Clow, SW SE NW Section 5-7n-3e, Benoist at 1,554-92 feet, flowed 194 bbls. O. W. Burroughs No. 1 Hosler, SW SW SE Section 8-5n-1e, Benoist 1,552-70 feet, dry and abandoned. W. C. McBride, Inc., No. 1 Williams, SE SW NE Section 12-7n-1e, Weiler 1,565 feet, total depth 1,579½ feet, pumped 65 bbls. after a shot. Carter Oil Co. No. 2 Howell, NW SW NW Section 15-8n-3e, Benoist sand at 1,568-93 feet, plugged back and perforated at 1,494-1,520 feet, pumped 108 bbls. Carter Oil Co. No. 2 Hopper, SW NW SW Section 14-8n-3e, Benoist at 1,580-97 feet, flowed 276 bbls. in 12 hours after a shot. Carter Oil Co. No. 7 Logsdon, SW SE SE Section 10-8n-3e, Benoist at 1,556-82 feet, flowed 408 bbls. after a shot. Glasco & Lewis No. 1 Cemetery, NW NE SE Section 30-6n-3e, Weiler 1,610-24 feet, pumped 256 bbls. Brown & Lacy No. 1 Albright, NE NW NE Section 19-6n-3e, McClosky lime at 1,963-80 feet, abandoned. Mabee Drilling Co. No. 2 Morrison, SE SW NE Section 19-7n-3e, Weiler sand 1,496-1,559 feet, estimated at 260 bbls. Johnston and others No. 1 Welker, NE NW NE Section 13-7n-2e, total depth 1,581 feet, plugged back to 1,574 feet, pumped 50 bbls. Burtschi No. 3 fee, SE cor. Section 18-7n-3e, Weiler at 1,480-1,520 feet, estimated at 100 bbls.

### Clinton County

In Clinton County, Huddleston & Givin No. 1 Rogers, SE NE SE Section 12-1n-1w, Benoist sand at 1,371-98 feet, pumped 30 bbls. Jones & Snyder No. 1 Rogers, SE NE SE Section 12-1n-1w, Benoist at 1,369-88 feet, shot with 40 quarts, pumped 75 bbls. Bert Fields No. 7 M.I.R.R., NW cor. SW SE SE Section 13-1n-1w, Benoist at 1,355-71 feet, shot with 15 quarts, pumped 80 bbls., and 8 bbls. of water. Ashby No. 1 Spears, NE NW NE Section 24-1n-1w, Benoist at 1,360-76 feet, pumped 50 bbls. of oil and 15 bbls. of water. Carpenter and Goldberg No. 1 Nickerson, NW cor. NE SE NE Section 24-1n-1w, Benoist at 1,377-88 feet, pumped 3 bbls. Hester & Graham No. 1 Ralph Reynolds, SE cor. NE NE Section 24-1n-1w, Benoist at 1,370-87 feet, shot with 10 quarts, pumped 15 bbls. of oil and 40 bbls. of water. Iroquois Oil Co. No. 1 Turner, SW cor. NE NE Section 24-1n-1w, Benoist at 1,393-1,405 feet, dry and abandoned. N. W. Crude No. 1 McGowan, SE cor. NE NE Section 24-1n-1w, Benoist sand at 1,378-88 feet, shot with 4 quarts, pumped 10 bbls. of oil and 60 bbls. of water. Pekras & Nixon No. 1 A. J. Babb, SE cor. SW NE NE Section 24-1n-1w, Benoist at 1,372-89 feet, shot with 8 quarts, pumped an estimated 50 bbls.

W. C. McBride, Inc., No. 5 Allison, SE SE NW Section 12-1n-1w, Clinton County, Benoist at 1,359-75 feet, pumped 136 bbls. following a shot. L. I. & G. Oil Co. No. 1 Maggie, NW NE NE Section 24-1n-1w, Benoist at 1,378-84 feet, 60 bbls. after a shot. J. L. Gardenshire Drilling Co. No. 1 Beecham, NE NW NE Section 24-1n-1w, Benoist 1,388-98 feet, dry and abandoned. Snowden No. 1 Beecham, NW NE NW NE Section 24-1n-1w, Benoist sand 1,369-81 feet, pumped 150 bbls. after a shot.

### Marion County

In Marion County, Mammoth Producing & Refining Co. No. 2 Leibel, NW SE SE Section 8-1n-2e, Benoist sand 1,891-1,915 feet, dry, McClosky lime at 2,088-2,107 feet, flowed 900 bbls. Texas Co. No. 1 Fyke, SW NE SW Section 8-1n-2e, Benoist at 1,814-18 feet, flowed 242 bbls. Mammoth Producing & Refining Co. No. 5 Bachman, NE SE SW Section 9-1n-2e, Benoist at 1,874-77 feet, pumped 110 bbls. Cameron, Johnson & Carroll No. 1 Antioch Cemetery, NW cor. SW NW NW Section 9-1n-2e, Benoist at 1,812-33 feet, flowed 350 bbls. J. J. Deaner No. 1 Burge, NE NW NE Section 18-1n-2e, Benoist at 1,846-93 feet, shot with 10 quarts, flowed 248 bbls. Kingwood Oil Co. No. 1 Shanafelt, SE

## Illinois Fields

**HIGHLIGHTS OF THE WEEK: Notwithstanding 94 completions were recorded in all Illinois fields in the past week, the 118 new operations bring field development to the highest point thus far reached in the past 22 months.**

**Daily production of new pools was 76,282 bbls., and in the old fields 10,923 bbls. Total 87,205 bbls.**

**Completed oil wells, 80; operations including locations, rigs and wells drilling, 510.**

NW NE Section 20-2n-2e, McClosky lime at 1,921 feet, total depth 2,009 feet, plugged back to 1,790 feet and flowed 430 bbls. through 2½-inch tubing from Benoist sand topped at 1,745 feet. Magnolia Petroleum Co. No. 2 Shanafelt, Bethel sand at 1,645 feet, total depth 1,692 feet, flowed 16 bbls. per hour through 2-inch tubing. Magnolia Petroleum Co. No. 3 Shanafelt, NW SE SW Section 29-2n-2e, Bethel at 1,715-30 feet, flowed 15 bbls. per hour through 2-inch tubing. Magnolia Petroleum Co. No. 1 Young, NE NW NE Section 29-2n-2e, Bethel at 1,736-41 feet, flowed 240 bbls. through 2-inch tubing. Texas Co. No. 1 Fossieck, SE NE SW Section 29-2n-2e, Benoist at 1,723 feet, total depth 1,777 feet, flowed 290 bbls. Texas Co. No. 1 Friedrich, NE NW SW Section 29-2n-2e, Benoist at 1,738 feet, total depth 1,781 feet, flowed 201 bbls. Texas Co. No. 2 Friedrich, SE NW SW Section 29-2n-2e, Benoist at 1,735 feet, total depth 1,781 feet, flowed 213 bbls. Williams & Anderson No. 1 Brooks, NW NE SW Section 29-2n-2e, Bethel at 1,739 feet, total depth 1,806 feet, flowed 258 bbls.

John Pugh Drilling Co. No. 1 Toulmine, SE SW SW Section 30-2n-2e, Benoist at 1,876-91 feet, shot with 10 quarts, pumped 90 bbls. of oil and 15 bbls. of water. Kingwood Oil Co. No. 3 Maxwell A, NE SE NE Section 31-2n-2e, Benoist at 1,650-97 feet, flowed 835 bbls. through 2½-inch tubing. Cumberland Production Co. No. 4 Mac Roberts, NW cor. SW SE NE Section 32-2n-2e, Bethel at 1,717 feet, total depth 1,753 feet, flowed 300 bbls. estimated. Texas Co. No. 1 Maxwell, SW cor. NE NE Section 32-2n-2e, Benoist at 1,734 feet, total depth 1,788 feet, flowed an estimated 600 bbls. Texas Co. No. 1 McCullom, SE cor. NW NE Section 32-2n-2e, Benoist at 1,723 feet, total depth 1,772 feet, flowed 281 bbls. through 2-inch tubing. Baldwin Oil Co. No. 1 Church lot, N half NW NE SE Section 33-2n-2e, Bethel at 1,893 feet, total depth 1,915 feet, flowed 408 bbls. through 2½-inch tubing. Texas Co. No. 1 D. Buckley, N half NW NW SE Section 33-2n-2e, Benoist at 1,831 feet, total depth 1,878 feet, flowed 467 bbls. in 24 hours. Broadus & Vickers No. 2 Rebstock, NE cor. SW SW SW Section 18-1n-1e, Weller at 1,205-17 feet, shot with 4 quarts, pumped 42 bbls. Ostrom No. 1 Foster, NW SW NW Section 19-1n-1e, Benoist at 1,378-84 feet, shot with 10 quarts, 24 bbls. of oil and 4 bbls. of water. Superior Oil Co. No. 2 Luttrell, NW SE SE Section 4-1n-2e, Benoist at 1,870-80 feet, pumped 120 bbls. of oil with about 4 bbls. of water. Mammoth Producing & Refining Co. No. 1 Seibel, NE SE SE Section 8-1n-2e, Benoist sand at 1,888 feet, total depth 1,900 feet, pumped 88 bbls. of oil.

Walter Duncan No. 1 Myers, C N half SW NW Section 34-1n-2e, Salem field, Marion County, dry and abandoned at 2,242 feet, McClosky lime at 2,178-82 feet. Anderson and others No. 4 English, SW NE SE Section 7-1n-2e, Benoist at 1,783-1,812 feet, total depth 1,815 feet, flowed 135 bbls. Superior Oil Co. (California) No. 1 Luttrell, SW SE SE Section 4-1n-2e, Benoist 1,939 feet, total depth 2,152 feet, was plugged back and casing perforated at 1,888-96 feet, pumped 25 bbls. Newhall No. 7 I.C.R.R., NE cor. SE SW SW Section 18-1n-1e, Centralia district, Benoist 1,353-58 feet, pumped 125 bbls. after a shot. L. A. Hummell No. 1 Atherton, NE NW SW SW Section 18-1n-1e, Benoist 1,340-77 feet, pumped 188 bbls. after a shot. J. L. Gardenshire No. 1 Mercier, NE cor. SW NE NE Section 12-1n-1e, dry and abandoned at 2,026 feet, Stein sand topped at 1,925 feet. Cumberland Production Co. and Ed Self No. 2 Mac Roberts, SW SE NE Section 32-2n-2e, Benoist sand, total depth 1,733 feet, flowed 265 bbls. through open tubing. Wiser Oil Co. No. 2 Weems, C N half NW NW Section 33-2n-2e, Benoist at 1,744-84 feet, flowed 618 bbls. through open tubing.

Roberts & Murphy No. 1 Dempsey, NE NE SE SW Section 31-2n-2e, Salem district, Benoist 1,731-71 feet, flowed 600 bbls. Magnolia Petroleum Co. No. 2 Harley, NE SW NE Section 31-2n-2e, Benoist at 1,650 feet, total depth 1,695 feet, flowed 808 bbls. through tubing. Magnolia Petroleum Co. No. 1 Harley, SE SW NE Section 31-2n-2e, Benoist 1,654 feet, total depth 1,687 feet, flowed 1,126 bbls. through tubing. Paul Rossi No. 1 Brooks, SW NE SW Section 29-2n-2e, Benoist 1,723 feet, total depth 1,774 feet, flowed 528 bbls. in four hours. Kingwood Oil Co. No. 1 Maxwell B, SE NE SE Section 30-2n-2e, Benoist 1,756 feet, total depth 1,979 feet, plugged back and casing perforated at 1,755-85 feet, flowed 235 bbls. Wanner No. 1 Young Church, SW SW SW NW Section 21-2n-2e, Benoist 1,766-75 feet, flowed 360 bbls. Shell Petroleum Corp. No. Salem State Bank, NE NW SE Section 20-2n-2e, Benoist 1,729 feet, total depth 1,783 feet, flowed 400 bbls. Max Pray and others No. 1 Rhodes, NE SE SW Section 23-3n-2e, McClosky lime at 2,356 feet, total depth 2,453 feet, dry and abandoned.

# Seven New Producing Wells in Birk City; New Wildcat Work

OWENSBORO, Ky., Oct. 24.—Seven wells with a combined initial production of 1,980 bbls. were completed in the Birk City field in the past week in review. On the Daviess County side of the field, Compton & Brown No. 1, Birk City church lot, is a 200-bbl. initial producer, total depth 1,890 feet. Snowden & McSweeney No. 1 Helen B. Fisher Estate, started at 250 bbls. at a total depth of 1,880 feet. Major Oil Co. No. 2 Peters, 300 bbls. from pay topped at 1,840 feet; W. E. Hupp and Snowden & McSweeney No. 6 Mrs. L. Taylor Estate, 250 bbls., total depth 1,894 feet. On the Henderson County side, Kentucky Natural Gas Co. and Sun Oil Co. test on the Duncan Estate, started at 500 bbls. a day, at a total depth of 2,100 feet; Carter Oil Co. No. 2 L. M. Mauzy, at 480 bbls. from pay at 1,927-42 feet, and Kentucky Natural Gas Co. and Sun Oil Co. No. 1 J. T. Newman, 300 bbls. from pay at 2,023-33 feet. The last-named well will be acidized. All the wells produced from McClosky lime pay.

The Bur-Kan Petroleum Co. will make a test of McClosky lime 4 miles south of the city of Henderson on the Henry Barrett farm. It is 20 miles from the Birk City pool. Standard rig is up.

Two miles north of Birk City, Cooper, Acos and Cooper were preparing to core McClosky limestone in a test on the Logsdon lease.

A test is about to be started in the bend of the Ohio River opposite the city of Evansville, Ind., but in Henderson County, Kentucky, by Ancel Douglas and others of Evansville. The well will be drilled with a rotary on the 713-acre farm of James E. Randall, Jr.

Assignments and leases covering several thousand acres in Henderson County were filed in the past week with the Henderson county clerk.

In a blanket assignment covering 53 tracts that embrace 3,632 acres, L. S. Blair transferred drilling rights to the Magnolia Petroleum Co.

In another assignment, John T. Cumbie conveyed to the Magnolia company 10 tracts containing 366.5 acres.

Other assignments were: S. M. Carson to Sun Oil Co. the 90-acre L. L. Chism lease; Forest E. Shelton, of Salem, Ill., to W. E. Hupp, a 43-acre block on the 1,876-acre H. P. Barret tract; John T. Cumbie to the Magnolia company, the 102-acre B. B. Gregory tract, the 154-acre W. F. Agnew tract, and the 5-acre Sam L. Green lease.

New leases filed were: L. A. Cottingham, C. E Branson, 112 acres; W. E. McClure, 272 acres; Mary L. Elliott, 102 acres; J. B. Porter, 261 acres; L. E. McDaniel 22 acres; Roy Sandefur, 50 acres; Mrs. L. B. Leeg, 112 acres; to the Sun Oil Co., Mayme C. Shippen, 150 acres; Elvira A. Royster, 19 acres.

Following are completions and near completions in other districts than Birk City, together with new operations in Western Kentucky generally:

In Breckinridge County, Glen Dean district: V. C. Hastings No. 2 Roy Owen was spudding.

In Butler County, Silver City district: Cumberland Petroleum Co. No. 1 Lon Andrews is a location; J. C. Miller, trustee, No. 2 Martha Hawes, a 20-bbl. completion in Jones sand at 465-80 feet, total depth 489 feet; No. 3 Hawes, a 30-bbl. well in Jones sand at 440-80 feet, total depth 484 feet; Cumberland Petroleum Co. and others No. 1 Lee Hawkins, 20 bbls. a day from Jones sand at 520-40 feet, total depth 546 feet; No. 2 Hawkins, drilling in. Mount Zion School district: Barnsdall Oil Co. No. 4 E. G. Harper, east tract, a 20-bbl. well in Jett sand at 191-205 feet; No. 5 Harper, east tract, a location; Porter Evans and others No. 1 Floyd Proctor, a dry hole.

In Daviess County, Birk City district: Snowden & McSweeney No. 2 Mrs. Helen B. Fisher Estate, moving in; A.C.R. Oil Co. No. 1 R. L. Logsdon, showed good saturation in Jones sand at 1,350 feet, coring in McClosky; Aetna Oil Service Corp. No. 1 G. M. Morrison, rigging up; W. E. Hupp and Snowden & McSweeney No. 7 Mrs. L. Taylor Estate, location; Major Oil Co. No. 1 Mirilda Wahl, 10 acres, drilling at 900 feet. Cane Run School district: Cumberland Petroleum Co. No. 4 J. Hayden, dry hole through McClosky, total depth 1,300 feet; Ellis & Ashby No. 6 Lawson Howard, dry hole through Jones sand; Cane Run Petroleum Co. No. 7 R. E. Jackson Estate, 50-bbl. well in Jett sand. Utica district: C. T. Johnston and L. C. Young No. 3 Howard & O'Flynn, dry hole through Jones sand; Ellis & Daugherty No. 4 Rex O'Flynn, dry hole through Jones sand.

In Hancock County, Easton district: Chester Oil Co No. 11 J. W. Baughn started at 15 bbls. from Jett sand, total depth 335 feet; No. 12, 10 bbls. per day from Jett sand, total depth 325 feet; No. 13 is moving in; J. C. Ellis No. 19 R. A. Richards is drilling at 150 feet.

In Henderson County, Evansville district: Ansel Douglas No. 1 James E. Rankin, Jr., is moving in. Cario district: Bur-Kan Oil Co. No. 1 H. P. Barrett & Green, derrick up. Birk City district: Kentucky Natural Gas Co. and Sun Oil Co. No. 2 Mrs. E. M. Duncan Estate is a location.

In Ohio County, Woodward Valley Church district: Anton & Ellis No. 1 L. E. Charlet, 50 acres, is drilling at 120 feet. Oklahoma district: Henry Scholl No. 4 Oscar Westerfield, 10 bbls. from Jett sand; A. Teller, trustee, No. 7 A. Dickens, dry hole through Jett sand. Taffy district: Western Kentucky Petroleum Corp. No. 42 Mary J. Elmore is drilling at 300 feet.

## Clay County

In Clay County, Pure Oil Co. No. 3 Schuyler-Fearn, C E half SW SE Section 22-1n-7e, pay at 3,001-14 feet, perforated with 36 holes at 3,017-13 feet, flowed 2,701 bbls. Pure Oil Co. No. 1 Travis B, C W half SW NW Section 4-2n-8e, pay at 3,057-62 feet, acidized with 5,000 gallons, flowed 363 bbls. of oil. Pure Oil Co. No. 1 W. C. Shipman, C E half NE NE Section 5-2n-8e, pays from 2,962 to 3,030 feet, flowed 311 bbls. Pure Oil Co. No. 3 Sol Smith A, C E half SW SE Section 9-2n-8e, pays from 3,023 to 3,063 feet, flowed 586 bbls. Pure Oil Co. No. 5 Bunn, C W half SE NE Section 16-2n-8e, flowed 418 bbls. Carter Oil Co. No. 2 Shelton, C E half NE NW Section 21-2n-8e, casing perforated at 2,966-71 feet, acidized with 4,000 gallons, flowed 401 bbls. Pure Oil Co. No. 2 Wilkin Consolidated, C W half SW SE Section 29-3n-8e, pays at 3,057 to 3,130 feet, acidized with 5,000 gallons, pumped and flowed 307 bbls. of oil and 171 bbls. of salt water.

Olson Drilling Co. No. 2 Madding, C N half NE NW Section 12-2n-7e, Fredonia lime at 3,054 feet, pay at 3,055-63 feet, flowed 300 bbls. through tubing. Pure Oil Co. No. 1 Scrugham Consolidated, C W half SW SE Section 4-2n-8e, Ste. Genevieve lime at 2,918 feet, pay at 2,955-60 feet, total depth 3,055 feet, flowed 479 bbls. Pure Oil Co. No. 11 Wilkins, C W half SE SE Section 29-3n-8e, pay at 2,985 feet, total depth 3,065 feet, flowed 662 bbls. of oil after an acid treatment.

## Richland County

In Richland County, Pure Oil Co. No. 1 Flanders Consolidated, C E half NE NW Section 20-3n-9e, pay at 2,975-80 feet, acidized with 2,000 gallons, and then with 5,000 gallons, flowed 231 bbls. of oil. Wicklund Development Co. No. 1 Farmer, C S half SW NE Section 29-3n-9e, dry and abandoned at 3,151 feet, small show of oil at 3,024-27 feet. Texas Co. No. 1 Winters, SE SW SE Section 22-4n-10e, pay at 3,041-46 feet, acidized with 1,000 gallons and then with 5,000 gallons, flowed 77 bbls. of oil through casing. Texas Co. No. 1 Harrolle, pay at 3,089-95 feet, acidized with 5,000 gallons, flowed 249 bbls. of oil. Texas Co. No. 3 Winters, NE SE NE Section 27-4n-10e, pay at 3,066-80 feet, acidized with 2,000 gallons, pumped 20 bbls. net oil.

Carpenter & Goldberg No. 1 Glathart, SE cor. SW Section 18-3n-10e, was reported temporarily abandoned at 3,096 feet. Pure Oil Co. No. 2 Allard, C W half SW SE Section 17-3n-9e, top of pay at 2,967 feet, total depth 3,040 feet, flowed 416 bbls. of oil after an acid treatment. J. V. Wicklund No. 4 Sager, NW NE SE Section 22-4n-10e, pay at 2,992½-96 feet, flowed 341

*(Continued on Page 214)*

# California Field Report

By
L. P. STOCKMAN

# Rio Bravo Field Had Best New Producer of the Week

LOS ANGELES, Calif., Oct. 24.—In the Wilmington field of Los Angeles Basin General Petroleum Corp. No. 1 Flint was recompleted flowing 193 bbls. of clean 28.9-gravity oil from the Ford zone after having been deepened to 5,670 feet. This rejuvenated well was brought in flowing through a 1½-inch bean, and showed a tubing pressure of 95 pounds and a casing pressure of 200 pounds. Richfield Oil Corp. completed No. 13 Pacific Dock, flowing 345 bbls. of clean 20.8-gravity oil daily from the Ranger zone with bottom of the hole at 3,670 feet. No. 1 Vosper of Independent Drilling Co. has been completed flowing 1,075 bbls. of clean 26.5-gravity oil per day from the Terminal zone with bottom of the hole at 3,592 feet. This well showed water on a preliminary production test last week from 4,020 feet which necessitated plugging back.

### Torrance—Harbor City

In the Harbor City area which is located south of the Lomita district of the Torrance field, Ring Oil Co. completed No. 3 Hawkins, flowing 320 bbls. of 29.4-gravity oil per day from 5,260 feet, after finishing the hole with 216 feet of 5½-inch liner including 190 feet of 125-mesh landed on bottom. No. 1 McEwen of Padran Oil Co. showed water on a production test at 5,304 feet but may be left on production as it is flowing 144 bbls. of 29.3-gravity oil, cutting 24 per cent, and may clean up a little after being on production for a few days longer. Caminol Co. No. 2-12 Lomita in the Harbor City area was good for 340 bbls. of clean 29.5-gravity oil per day upon completion at 5,317 feet. This well was finished with a 7-inch water string landed at 5,148 feet and 202 feet of 5½-inch liner including 172 feet of perforated landed at 5,316 feet.

Elexico Oil Co. No. 4 Airey was the best well completed in the Lomita section, as it came in flowing 391 bbls. of 27.8-gravity oil per day from 4,975 feet, after the hole had been finished with 302 feet of 4¾-inch liner including 211 feet of 100-mesh landed at 4,974 feet. Macson Oil Co. No. 1589-1 Lomita was finished flowing 362 bbls. of relatively clean 28.9-gravity oil daily from 5,256 feet after the hole had been completed with 180 feet of 5-inch liner including 151 feet of 120-mesh perforations. No. 4 Airey was brought in through a 32/64-inch bean and No. 1589-1 Lomita was finished flowing through a 32/64-inch bean. C. H. Lebow No. 1 Ellis has been completed flowing 197 bbls. of fairly clean 27.3-gravity oil per day from 5,123 feet. This new producer which was finished with 360 feet of 7-inch liner including 320 feet of 120-mesh landed on bottom was brought in flowing through a 15/64-inch bean and showed a tubing pressure of 120 pounds and a casing pressure of 250 pounds. A. & T. Oil Co. has recompleted No. 1 fee pumping 153 bbls. of clean 26.6-gravity oil per day from 5,123 feet after the hole had been carried down from the upper to the lower zone.

### Montebello

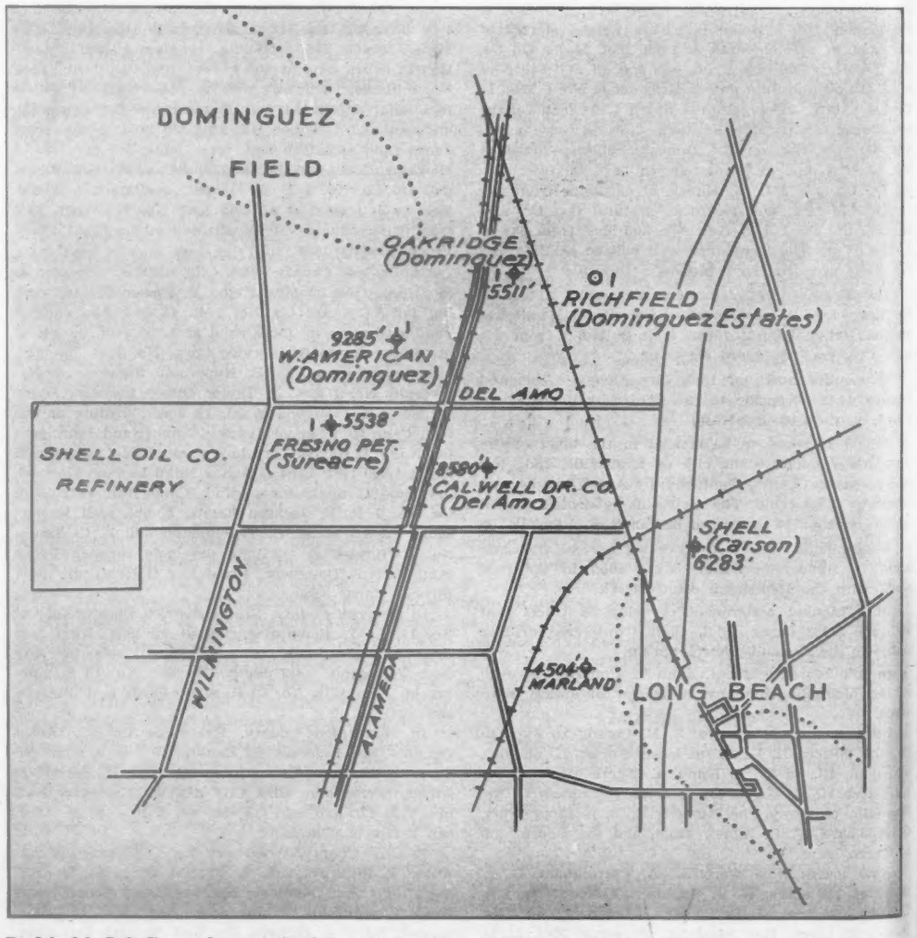
In the Montebello field, Herley-Kelly, Inc., returned No. 1 Burke to production flowing 725 bbls. of clean 36.4-gravity oil per day from the lower part of the sixth Miocene zone with bottom at 6,433 feet. This well came in flowing through the tester but this was subsequently pulled and the hole completed with the customary liner. No. 2 Manz of McVicar & Rood has been returned to production flowing 1,190 bbls. of 37.1-gravity oil per day from the lower part of the sixth zone with bottom of the hole at 6,410 feet. The hole was finished with 222 feet of 6⅝-inch liner including 75 feet of perforated landed on bottom and cemented through perforations at 6,333 feet. Hathaway Oil Co. No. 1 Dore, the most southwesterly well in the Montebello extension south of the intersection of Maple and Beverly, cored a gray sand which appears to contain water at 6,690 feet, and thus the outlook for this outpost is not bright. Montebello Wesco has killed its initial well in this field, and resumed drilling, as the well's initial 153 bbls. daily from the upper part of the sixth zone at 6,240 feet was too small to permit sustained production. No. 29 Monterey of St. Helens Petroleum Co., discoverer of deeper production in the western end of the Montebello field, will probably go a long way toward proving the importance of the fifth and sixth zone in the extreme western end of the structure as this well is far enough north to give a good check on production contours. Heretofore the St. Helens company has only drilled first line offset wells to protect its acreage from drainage, but No. 29 Monterey is a second line offset in the western end of the area. Standard Oil Co. is preparing two potential producers for production tests in this field and may have a third well tanking oil within another few days.

### Rio Bravo

Superior Oil Co. completed another excellent producing well in the prolific Rio Bravo field of Kern County. Superior No. 2 Ruhl was finished flowing 1,150 bbls. of very clean 38.2-gravity oil per day from the Rio Bravo zone with bottom of the hole at 11,523 feet. This well topped the pay at 11,488 feet and has a 7⅝-inch water string landed and cemented at 11,475 feet. Union Oil Co. concluded drilling operations on No. 5-34 Kern County Land and should have this well on production within a few days. No. 6-34 Kern County Land is scheduled for completion on or before November 1.

### Lost Hills—Belridge

Belridge Oil Co. completed another excellent producing well in the North Belridge field when No. 27-13 in Section 27-27-20 was brought in flowing 1,620 bbls. of clean 30.9-gravity oil and 8,250,000 feet of natural gas per day from the Wagonwheel zone with bottom of the hole at 8,465 feet. This new well which was finished with 9-inch water string cemented at 8,150 feet and the usual liner logged top of the oil sand at 8,188 feet and therefore has 277 feet of oil zone open to production. The well flowed through a 96/64-inch bean, but the orifice was subsequently reduced. There are only five strings of tools in operation in the field, three by Belridge Oil Co. and two by Tide Water Associated Oil Co. In the Lost Hills field the latter company is rigging up rotary on No. 10-R




*Richfield Oil Corp. has staked location for a wildcat in Section 2-4-13 on the Dominguez estate lease southeast of the Dominguez field and northwest of the Long Beach field*

# GAS...OIL... OR WATER?

## DON'T GUESS... KNOW WHETHER YOU HAVE A PROFITABLE PRODUCER!

**Core Laboratories' service is the scientific short cut today to greater success and bigger profits in field development.**

**It helps you to know, in advance, the results to be expected. Not only the type and quality of "pay dirt" but the *capacity* of the expectant well.**

**Thus substantial savings can be effected many times on casing and equipment alone.**

**IN ILLINOIS . . . Gulf Coast or any field in the Mid-Continent area. Core Lab service can reach you on short notice.**

**Core Lab's modern portable field laboratories are available day or night to render a complete core analysis service on location.**

**Call us at the location nearest you.**

● *Another Illinois well completed by recommendation of Core Laboratories, Inc. core analyses.*

● *For deep or shallow wells, Core Lab offers a complete laboratory service by experienced analysis. A modern laboratory at your derrick floor!*

● *Night or day, 24 hours a day Core Lab field laboratories will provide an expert core analysis service, anywhere in Illinois, Mid-Continent or Gulf Coast areas.*

## CORE LABORATORIES, INC.

**General Offices: 717 Santa Fe Bldg., Phone 2-8952, Dallas, Texas**

| Centralia, Ill. | Corpus Christi, Tex. | Houston, Texas | Lafayette, Louisiana |
|---|---|---|---|
| 324 Perrine Avenue | 1410 4th Street | Lee Hotel | 106 College Street |
| Phone 465 | Phone 4752 | Fairfax 1157 | Phones 2060 and 1059W |

Williamson, far out in the western end of the field in Section 2-27-20.

## Greeley—Ten Section

In the Greeley field of San Joaquin basin, Standard Oil Co. picked up the productive Rio Bravo zone in No. 2 Fleishauer at 11,500 feet but this point is about 133 feet lower than the top of the same zone in No. 11-2 Kern County Land, the deep zone discovery in this field. These two wells are about 3,500 feet apart and if No. 2 Fleishauer results in large production the deep zone in this field will have been proved to be of primary importance. No. 11-2 Kern County Land indicated that it was capable of flowing approximately 20,000 bbls. per day if turned loose, but Standard Oil Co. did not make any open flow test and therefore this probability was not confirmed. Superior Oil Co. has not yet found the productive Rio Bravo zone in this field as No. 1 Krause in Section 21-29-26 is now down 12,275 feet and still drilling ahead. In the Ten Section field, controlled entirely by Shell Oil Co., No. 83-25-A Kern County Land of Shell has been completed flowing 2,470 bbls. of clean 34.9-gravity oil and 2,175,000 feet of natural gas per day from the Stevens zone with bottom of the hole at 8,220 feet. This well was finished with a 7-inch water string and swabbed into production late in the week.

## Kern County

In the Mount Poso field, Union Oil Co. completed No. 13 Tribe in Section 28-27-28 pumping 210 bbls. of relatively clean 16.6-gravity oil daily from 1,900 feet. Crestmont Oil Co. No. 5 Staley in the Round Mountain field in Section 8-28-29 proved good for 182 bbls. of clean 17.1-gravity oil per day on the beam from 1,605 feet. Helm & Smith completed No. 9-A in Section 34-28-28 pumping 18 bbls. of 14.3-gravity oil cutting 9 per cent from 675 feet and have spudded in No. 10-A in the same section.

## San Joaquin Basin

In the Kettleman North dome field, Kettleman North Dome Association (Kenda) completed No. 27-22-Q in Section 22-22-18 flowing 1,350 bbls. of 34.6-gravity oil cutting 2.5 per cent daily from the Temblor with bottom of the hole at 8,670 feet. It is producing 8,600,000 feet of natural gas along with the oil.

Two wells were put on production in the Fruitvale field of Kern County, but neither registered large production. Western Gulf Oil Co. No. 39-B Kern County Land in Section 21-29-27 was good for 281 bbls. of 22.1-gravity oil at 3,896 feet and Meridian Oil Co. No. 3 fee in Section 23-29-27 was good for 90 bbls. of clean 21.9-gravity oil per day on the beam from 3,670 feet.

## Los Angeles Basin

Superior Oil Co. in the Rosecrans field completed No. 11 Maxwell flowing 1,630 bbls. of clean 31.6-gravity oil and 800,000 feet of natural gas per day from the O'Dea zone with bottom of the hole at 7,676 feet. Union Oil Co. No. 26 Rosecrans, bottom in the O'Dea zone at 7,700 feet, tested wet late in the week and a check indicated the necessity for a recement job. In the Long Beach field the Texas Co. No. 2-3 Foster has been recompleted, pumping 162 bbls. of 22.6-gravity oil cutting 7 per cent daily. This well was originally bottomed at 5,000 feet but has been redrilled to 3,380 feet. De Soto Oil Co. and others deep zone exploratory well has just passed the 8,900-foot level and should soon be the deepest well drilled in the Long Beach field. The deepest well has been Shell's No. 11 Nesa, bottomed at 9,280 feet at which point it was abandoned.

In the Huntington Beach field of Los Angeles Basin, Southwest Exploration Co., owned jointly by Signal Oil & Gas Co. and Hancock Oil Co., has spudded in two tideland projects and has staked location for two more. These first four wells are located on property secured from Standard Oil Co. and since the holes do not have to cross any streets the city of Huntington Beach can not secure any temporary restraining orders or injunctions.

### TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

| | October 13 Total this week | October 13 Daily average | October 7 Total last week | October 7 Daily average | This year to date | Same time last year |
|---|---|---|---|---|---|---|
| Intercoastal-domestic— | | | | | | |
| Crude oil | ..... | ..... | 74,912 | 10,702 | 852,826 | 129,788 |
| Diesel and gas oil | ..... | ..... | ..... | ..... | ..... | 176,726 |
| Gasoline | ..... | ..... | ..... | ..... | 2,437,678 | 3,451,783 |
| Kerosene | ..... | ..... | ..... | ..... | 257,005 | 328,907 |
| Foreign exports— | | | | | | |
| Crude oil | 98,150 | 14,021 | 258,232 | 36,890 | 17,342,604 | 11,973,723 |
| Fuel oil | 135,637 | 19,377 | 140,991 | 20,142 | 7,131,884 | 11,483,675 |
| Diesel and gas oil | ..... | ..... | 224,097 | 32,014 | 4,882,907 | 6,085,623 |
| Gasoline | 397,663 | 56,809 | ..... | ..... | 6,344,434 | 6,536,151 |
| Kerosene | ..... | ..... | ..... | ..... | 852,318 | 1,875,941 |
| Lubricants | ..... | ..... | ..... | ..... | 173,388 | 12,984 |
| Other unfinished oil | ..... | ..... | ..... | ..... | ..... | 974,785 |
| Coastwise-domestic— | | | | | | |
| Crude oil | 345,757 | 49,394 | 203,044 | 29,006 | 9,695,305 | 4,181,995 |
| Fuel oil | 303,520 | 43,360 | 309,874 | 44,268 | 9,392,510 | 12,254,685 |
| Diesel and gas oil | 13,556 | 1,937 | 38,912 | 5,559 | 1,228,148 | 1,795,158 |
| Gasoline | 238,385 | 34,055 | 453,783 | 64,826 | 11,888,427 | 12,412,784 |
| Kerosene | 6,197 | 885 | ..... | ..... | 208,566 | 317,399 |

### TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Intercoastal-domestic— | | | | | | |
| Diesel and gas oil | ..... | ..... | ..... | ..... | 196,644 | 152,932 |
| Gasoline | ..... | ..... | ..... | ..... | 25,409 | 25,778 |
| Kerosene | ..... | ..... | ..... | ..... | 16,124 | 72,750 |
| Asphalt | ..... | ..... | ..... | ..... | 490,039 | 413,885 |
| Lubricants | ..... | ..... | ..... | ..... | 16,905 | 25,522 |
| Foreign exports— | | | | | | |
| Crude oil | 101,911 | 14,559 | ..... | ..... | 4,588,646 | 2,459,574 |
| Fuel oil | 82,306 | 11,758 | ..... | ..... | 2,210,195 | 1,758,156 |
| Diesel and gas oil | 100,159 | 14,308 | ..... | ..... | 2,319,581 | 2,472,520 |
| Gasoline | 34,342 | 4,906 | ..... | ..... | 4,536,916 | 4,308,815 |
| Kerosene | ..... | ..... | ..... | ..... | 696,099 | 787,814 |
| Asphalt | ..... | ..... | ..... | ..... | 56,258 | ..... |
| Lubricants | 19,614 | 2,802 | ..... | ..... | 424,152 | 458,698 |
| Coastwise-domestic— | | | | | | |
| Fuel oil | 140,128 | 20,018 | 135,940 | 19,420 | 4,807,946 | 5,201,090 |
| Diesel and gas oil | 38,712 | 5,530 | 33,611 | 4,802 | 1,237,067 | 1,086,521 |
| Gasoline | 98,740 | 14,106 | 129,931 | 18,562 | 6,269,118 | 4,298,974 |
| Kerosene | 18,919 | 2,703 | 9,822 | 1,403 | 449,786 | 250,432 |

### TOTAL TANKER SHIPMENTS FROM CALIFORNIA TO DOMESTIC AND FOREIGN PORTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Intercoastal-domestic— | | | | | | |
| Crude oil | ..... | ..... | 74,912 | 10,702 | 852,826 | 129,788 |
| Diesel and gas oil | ..... | ..... | ..... | ..... | 196,644 | 329,658 |
| Gasoline | ..... | ..... | ..... | ..... | 2,463,087 | 3,477,561 |
| Kerosene | ..... | ..... | ..... | ..... | 273,129 | 401,657 |
| Asphalt | ..... | ..... | ..... | ..... | 490,039 | 413,885 |
| Lubricants | ..... | ..... | ..... | ..... | 16,905 | 25,522 |
| Foreign exports— | | | | | | |
| Crude oil | 200,061 | 28,580 | 258,232 | 36,890 | 21,931,250 | 14,433,297 |
| Fuel oil | 217,943 | 31,135 | 140,991 | 20,142 | 9,342,079 | 13,241,831 |
| Diesel and gas oil | 100,159 | 14,308 | 224,097 | 32,014 | 7,202,488 | 8,558,143 |
| Gasoline | 432,005 | 61,715 | ..... | ..... | 10,881,350 | 10,844,966 |
| Kerosene | ..... | ..... | ..... | ..... | 1,548,417 | 2,663,755 |
| Asphalt | ..... | ..... | ..... | ..... | 56,258 | ..... |
| Lubricants | 19,614 | 2,802 | ..... | ..... | 597,540 | 471,682 |
| Other unfinished oil | ..... | ..... | ..... | ..... | ..... | 974,785 |
| Coastwise-domestic— | | | | | | |
| Crude oil | 345,757 | 49,394 | 203,044 | 29,006 | 9,695,305 | 4,181,995 |
| Fuel oil | 443,648 | 63,378 | 445,814 | 63,688 | 14,200,456 | 17,455,775 |
| Diesel and gas oil | 52,268 | 7,467 | 72,523 | 10,360 | 2,465,215 | 2,881,679 |
| Gasoline | 337,125 | 48,161 | 583,714 | 83,388 | 18,157,545 | 16,711,758 |
| Kerosene | 25,116 | 3,588 | 9,822 | 1,403 | 658,352 | 567,831 |

### STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.
**Crude oil prices at the well effective June 22, 1936**

| Gravity— | Signal Hill (Long Beach) | Seal Beach | Alamitos Heights | Huntington Beach | Inglewood | Playa del Rey | Olinda-Brea Canyon | Athens-Rosecrans | Dominguez | Elwood Terrace | Torrance | Richfield | Whittier E. Coyote (La Habra) | Montebello | W. Coyote Hills | Santa Fe Springs | Mountain View | Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area | Lost Hills | Coalinga | Wheeler Ridge | Kettleman Hills | Santa Paula* | Orcutt* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14-14.9 | $.80 | $.79 | $.74 | $.78 | $.79 | $.80 | $.76 | ... | ... | ... | $.80 | $.76 | $.76 | $.77 | $.78 | ... | ... | $.70 | $.70 | $.70 | ... | ... | $.70 | ... |
| 15-15.9 | .80 | .79 | .74 | .78 | .79 | .80 | .76 | ... | ... | ... | .80 | .76 | .76 | .77 | .78 | ... | ... | .70 | .70 | .70 | ... | ... | .70 | ... |
| 16-16.9 | .80 | .79 | .74 | .78 | .79 | .80 | .76 | ... | ... | ... | .80 | .76 | .76 | .77 | .78 | ... | ... | .70 | .70 | .70 | ... | ... | .70 | $.70 |
| 17-17.9 | .80 | .79 | .74 | .78 | .81 | .80 | .76 | ... | ... | ... | .80 | .76 | .76 | .77 | .78 | ... | ... | .70 | .70 | .70 | ... | ... | .71 | .70 |
| 18-18.9 | .80 | .79 | .74 | .78 | .84 | .80 | .78 | ... | ... | ... | .82 | .76 | .76 | .77 | .78 | ... | ... | .70 | .70 | .70 | ... | ... | .73 | .72 |
| 19-19.9 | .82 | .79 | .74 | .82 | .87 | .84 | .81 | ... | ... | ... | .85 | .76 | .78 | .77 | .78 | ... | $.70 | .74 | .74 | .71 | $.70 | ... | .75 | .74 |
| 20-20.9 | .85 | .79 | .74 | .85 | .90 | .88 | .84 | ... | ... | ... | .88 | .78 | .82 | .77 | .80 | ... | .70 | .78 | .78 | .72 | .70 | ... | .77 | .77 |
| 21-21.9 | .88 | .79 | .74 | .89 | .93 | .93 | .88 | ... | ... | ... | .91 | .80 | .85 | .77 | .84 | $.78 | .73 | .82 | .82 | .74 | .70 | ... | .79 | .80 |
| 22-22.9 | .92 | .82 | .74 | .92 | .96 | .96 | .92 | ... | ... | ... | .93 | .84 | .89 | .79 | .88 | .78 | .77 | .87 | .86 | .78 | .72 | ... | .82 | .83 |
| 23-23.9 | .95 | .86 | .77 | .96 | .99 | 1.02 | .96 | $.84 | $.79 | ... | .96 | .88 | .93 | .82 | .92 | .78 | .80 | .92 | .90 | .82 | .76 | ... | .85 | .86 |
| 24-24.9 | .99 | .91 | .80 | 1.00 | 1.02 | 1.06 | .99 | .88 | .81 | ... | .99 | .91 | .96 | .85 | .96 | .82 | .84 | .97 | .94 | .86 | .79 | ... | .87 | .88 |
| 25-25.9 | 1.03 | .95 | .82 | 1.03 | 1.05 | 1.11 | 1.03 | .93 | .83 | ... | 1.02 | .95 | .. | .89 | .99 | .86 | .88 | 1.01 | .98 | .90 | .83 | ... | .90 | .91 |
| 26-26.9 | 1.06 | 1.00 | .85 | 1.07 | 1.09 | 1.16 | 1.06 | .98 | .86 | ... | 1.05 | .98 | ... | .92 | 1.03 | .90 | .91 | 1.06 | 1.02 | ... | ... | ... | .92 | .93 |
| 27-27.9 | 1.10 | 1.05 | .88 | 1.11 | 1.12 | ... | 1.10 | 1.03 | .88 | ... | ... | 1.02 | ... | .96 | 1.06 | .95 | .95 | 1.10 | 1.06 | ... | ... | ... | .95 | ... |
| 28-28.9 | 1.14 | 1.10 | .90 | 1.14 | 1.15 | ... | 1.14 | 1.07 | .90 | ... | ... | 1.06 | ... | .99 | 1.10 | .99 | .99 | 1.15 | 1.10 | ... | ... | ... | .97 | ... |
| 29-29.9 | 1.17 | 1.15 | .93 | 1.18 | 1.18 | F.O.B. | 1.17 | 1.12 | .93 | ... | ... | 1.09 | ... | 1.03 | 1.14 | 1.03 | 1.02 | 1.20 | 1.14 | ... | ... | ... | .99 | ... |
| 30-30.9 | 1.21 | 1.19 | .95 | 1.22 | 1.21 | our | 1.21 | 1.17 | .95 | F.O.B. | ... | ... | ... | 1.07 | 1.17 | 1.08 | 1.06 | 1.25 | 1.18 | ... | ... | ... | 1.01 | ... |
| 31-31.9 | ... | ... | ... | ... | 1.24 | Pipe | 1.24 | 1.22 | .97 | Ship | ... | ... | ... | 1.11 | 1.21 | 1.12 | 1.09 | 1.29 | ... | ... | ... | ... | ... | ... |
| 32-32.9 | ... | ... | ... | ... | 1.27 | Line | 1.27 | 1.27 | 1.00 | ... | ... | ... | ... | 1.14 | 1.25 | 1.16 | 1.13 | 1.34 | ... | ... | ... | ... | ... | ... |
| 33-33.9 | ... | ... | ... | ... | ... | ... | ... | 1.32 | ... | 1.28 | ... | ... | ... | 1.18 | 1.28 | 1.20 | 1.17 | 1.38 | ... | ... | ... | $1.19 | ... | ... |
| 34-34.9 | ... | ... | ... | ... | ... | ... | ... | 1.37 | ... | 1.32 | ... | ... | ... | 1.22 | 1.32 | 1.25 | 1.20 | ... | ... | ... | ... | 1.23 | ... | ... |
| 35-35.9 | ... | ... | ... | ... | ... | ... | ... | 1.42 | ... | 1.35 | ... | ... | ... | 1.25 | ... | 1.29 | ... | ... | ... | ... | ... | 1.27 | ... | ... |
| 36-36.9 | ... | ... | ... | ... | ... | ... | ... | 1.46 | ... | 1.39 | ... | ... | ... | 1.29 | ... | 1.33 | ... | ... | ... | ... | ... | 1.31 | ... | ... |
| 37-37.9 | ... | ... | ... | ... | ... | ... | ... | 1.51 | ... | 1.43 | ... | ... | ... | 1.32 | ... | 1.37 | ... | ... | ... | ... | ... | 1.35 | ... | ... |
| 38-38.9 | ... | ... | ... | ... | ... | ... | ... | 1.56 | ... | ... | ... | ... | ... | 1.36 | ... | 1.42 | ... | ... | ... | ... | ... | 1.39 | ... | ... |
| 39-39.9 | ... | ... | ... | ... | ... | ... | ... | 1.61 | ... | ... | ... | ... | ... | 1.40 | ... | ... | ... | ... | ... | ... | ... | 1.43 | ... | ... |
| 40-40.9 | ... | ... | ... | ... | ... | ... | ... | 1.66 | ... | ... | ... | ... | ... | 1.43 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington. 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

# Southwest Texas District

By F. L. SINGLETON

# New Sands and Extensions Feature Results in District

CORPUS CHRISTI, Tex., Oct. 24.—Rutherford Oil Corp. No. 1 Schirmer, 3,600 feet northeast of the La Rosa field, Refugio County, which last week appeared to be a dry hole after coring salt water in the discovery horizon, has cemented 7-inch casing at 6,396 feet, preparatory to testing a deeper sand which has shown evidence of commercial production on a drill stem test. Oil sand was cored at 6,322-27 feet, and on a 13-minute drill stem test, 600 feet of oil was recovered and the pressure built up to 95 pounds. The hole was cored ahead at 6.327-29 feet, but no recovery was made, while at 6,329-31 feet the section was logged as oil sand.

North of production approximately 1 mile, Darby Petroleum Co. No. 1 Rooke was coring for the 5,400-foot sand. In the field proper, Geophysical Service Co. No. 3 Rooke, flowed 132 bbls. per day through 7/64-inch choke. Casing was perforated at 5,902-05½ feet.

Five miles northeast of the field, J. W. Heard No. 1 Hundson, Estaben Lopez Survey, cored 7 feet of sand showing oil, with the lower portion carrying salt water and on an 11-minute drill stem test at 5,368-89 feet, it tested 1,800 feet of salt water with a slight show of oil and 2 pounds of working pressure. This is the second sand section that has been logged.

### New Tulsita Field

Herbert Aid and others completed No. 2 Imogene Hall in Bee County to open another gas field along the Pettus trend. The casing was perforated at 3,582-88 feet and the well flowed an estimated 2,000,000 feet of gas daily through a quarter-inch choke. The field which has been named "Tulsita" is located 2½ miles northwest of the town of Pettus in the George Kerr Survey.

Evidence of another productive sand in the newly opened Sun field, Starr County, was indicated by Sun Oil Co. No. 1 Olivarez, northwest of the discovery well in Section 239. On a 20-minute drill stem test at 4,901-11 feet, 750 feet of pipe line oil was recovered and the working pressure built up to 103 pounds. The showing of this test has indicated several prospective sands above and below the discovery horizon at 4,800 feet. Late in the week soft sand and sandy shale having an oil odor was cored from 5,064-65 feet, and on a drill stem test, the well tested 200 feet of drilling mud and a slight show of gas. One mile southwest of the discovery well, Section 274, Sun Oil Co. No. 1 Speer cored broken sand with an oil odor at 5,406-36 feet, total depth, and the hole was being reamed preparatory to making a drill stem test. This well is reported to be running about 80 feet lower than the discovery well, and the showing is the first reported.

In the northeast corner of Jim Hogg County, Charles R. Fox No. 1 Canales, Marcelo Ynojosa grant, cored sand with an oil odor at 5,322-28 feet, and sandy shale with streaks of sand having an oil odor at 5,328-33 feet. A six-minute drill stem test was attempted at 5,297-5,333 feet, but the seat slipped to 5,307 feet and the test recovered 300 feet of drilling mud and no working pressure. Late in the week the hole was being reamed for a second test.

One-half mile east of the McAllen city limits, Hidalgo County, R. E. Harding and others No. 1 E. M. Card is reported to have cemented 7-inch casing on bottom preparatory to testing a gas sand at approximately 6,900 feet. This well is about 2 miles north of the Pharr field, discovered by the same operator a few months ago.

North of the Samfordyce field, Hidalgo County, H. C. Dean and others No. 1 A. F. Sheldon promised a 1,600-foot extension to the field, as casing was cemented on bottom at 2,870 feet, preparatory to testing sand at intervals from 2,700-2,865 feet. Another outpost test which has created considerable interest is Phillips Petroleum Co. No. 1 Flores, a deep test one-quarter mile north of the field in Share 250, Porcion 39. The well is drilling ahead below 9,036 feet after an electrical coring survey was run to 9,000 feet. Several sands below the Samfordyce pay have been logged, the deepest being 8,100 and 8,800 feet, both of which are reported to have carried gas.

### In the Laredo District

In the Laredo district and located one-quarter mile northeast of the Campana field, McMullen County, Barbara Oil Co. No. 1 Edrington, A.B.&M. Survey No. 79, is coring ahead below 2,710 feet after a drill stem test at 2,670-74 feet, recovered a slight amount of oily mud.

One mile east of the town of Los Ojuelos, Los Juelos grant, Webb County, William Spice No. 1 A. M. Bruni, cored firm sand with an oil odor at 1,827-30 feet, and shaley sand with an oil odor at 1,830-34 feet. No drill stem test has been made and one hole was still in sand showing oil at 1,848 feet.

In the south extension area of the Ezzell field, McMullen County, two new producers were completed. Harry Ezzell No. 23 fee, 660 feet south of No. 22 Ezzell, the extension producer, flowed 575 bbls. per day from sand bottomed at 1,570 feet. In Section 35, Edwin M. Jones No. 38 Ezzell was completed at 1,580 feet, and is reported to have flowed 360 bbls. daily.

In the Balcones Fault Line area, Plateau Oil Co. No. 1 Hunger, J. Dufner Survey No. 43, 6 miles west of Junction, Kimble County, is bottomed at 1,800 feet, and 7-inch casing was cemented at 1,765 feet. The well is reported to have bailed several barrels of oil before the casing was set.

In Atascosa County and located 12 miles east of Pleasanton, R. C. Stanley cemented casing in No. 1 Schumann, which is reported to have logged some saturation below 1,650 feet. The hole is bottomed at 1,703 feet.

Lake-Tobian Oil Co. No. 1 LaSalle County Land Co., LaSalle County, is reported to have drilled sand rock with a slight show of oil at 387-89 feet, and a showing of gas at 612-13 feet. Sandy shale with streaks of sand having a slight oil show was reported at 900-89 feet.

Evidence of a new sand on the west side of the South Alice field, Jim Wells County, was indicated by Southern Minerals Corp. No. 1 Stillwell, Lot 17, L. C. Collins Farm Lots. Sand showing gas and distillate was cored at 5,425-46 feet, and on a drill stem test, 630 feet of 46-gravity oil was recovered and the working pressure built up to 80 pounds.

In the East Premont field, Jim Wells County, location for an interesting 3,000-foot outpost test has been staked by the Transwestern Oil Co. for No. 1 Emma Seeligson on line between Lots 48 and 49, Section 17, of the Haldeman subdivision.

### McCampbell Extension

One mile south of the McCampbell field and located in San Patricio County, Frank Grote No. 1 Carlock is reported to be flowing into the pits, showing for an excellent producer. The well is flowing through a small choke under a working pressure of 400 pounds. The well was drilled "tight" and details of the completion were not available, although it is reported to be completed in the 7,100-foot sand.

Jay Simmons No. 2 Lawrence, in the Saxet field, Nueces County, which last Saturday blew out and caught fire is still burning and the crater is reported to cover approximately 10 acres, making this well one of the most disastrous blowouts in the field's history. The well began blowing out last week and caught fire shortly afterwards killing two persons and injuring four others.

## SOUTHWEST TEXAS COMPLETIONS

(24-hour production)

### Brooks County

Alta Verde field: Stutenroth No. 1 Singer, 899 feet, 42 bbls. of oil, 29 bbls. of sulfur water, pumping.

### Caldwell County

Salt Flat field: Wiegand Brothers No. 5-A Briscoe, 2,713 feet, 51 bbls., pumping.

### Calhoun-Victoria Counties

Heyser field: George Echols No. 5-B Lander perforated casing 5,479-86 feet, 222 bbls., quarter-inch choke. Gulf Oil Corp. No. 1 White Bryan, 6,060 feet, abandoned. Seaport Oil Corp. No. 6 Diemer, perforated casing 5,480-90 feet, 40 bbls., 11/64-inch choke.

### Duval County

Benavides field: Arkansas Fuel Oil Co. No. 9 Rossi, 4,798 feet, 110 bbls., quarter-inch choke. Casa Blanca field: Creighton & Moore No. 2-A Martin, sand 1,184-91 feet, 82 bbls., pumping. Fitzsimmons field: Frank Fronhoffer No. 1 W. F. Fitzsimmons, perforated casing 4,330-38 feet, 70 bbls., 7/64-inch choke. H. J. Porter No. 4 Driscoll, perforated casing 4,354-64 feet, 178 bbls., 11/64-inch choke. McAlester Fuel Co. No. 1 Mew, perforated casing 4,354-64 feet, 178 bbls., 11/64-inch choke. Hoffman field: Continental Oil Co. No. 2 Collings, sand 2,773-2,801 feet, 103 bbls., quarter-inch choke. Cox, Hamon and others No. 51 Cuellar Brothers, 2,585 feet, 150 bbls., quarter-inch choke; No. 1 Hoffman-Bascum, sand 2,738-44 feet, 165 bbls., half-inch choke. Magnolia Petroleum Co. No. 15 Well, 2,797 feet, 4 bbls. per hour, jetting.

### Guadalupe County

Darst Creek field: United North and South Development Co. No. 10 Cix, 2,554 feet, 169 bbls. of oil, 147 bbls. of sulfur water, pumping.

### Hidalgo County

Samfordyce field: Henshaw Brothers No. 1 Guerra, perforated casing 2,862-68 feet, 58 bbls., eighth-inch choke. Dean & Davis No. 1 Guerra, sand 2,850-57½ feet, 150 bbls., three-sixteenths inch choke.

### Jim Wells County

South Alice field: R. Bryant No. 2 Stillwell, perforated casing 5,265-78 feet, 200 bbls., three-sixteenths inch choke.

### Karnes County

South Burnell field: J. P. Arnot No. 1 Steed, 3,702 feet, abandoned.

### McMullen County

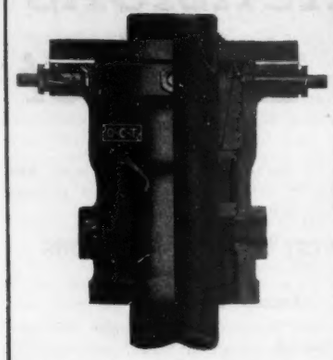
Munson field: Bishop Oil Co. No. 4-A Nueces Land & Livestock Co., 1,251 feet, abandoned. Bishop Oil Co. and others No. 2-B Nueces Land & Livestock Co., 1,348 feet, abandoned. Smith & Cosner No. 1 Nueces Land & Livestock Co., 1,193 feet, abandoned. Taylor Refining Co. No. 1 Nueces Land & Livestock Co., 1,268 feet, abandoned. Calliham field: No. 7 Lark, 1,051 feet, abandoned.

### Medina County

Chacon Lake field: A. A. Murrell No. 4 fee, 381 feet, 3½ bbls. per day, pumping.

*(Continued on Page 202)*

O-C-T
TYPE C-9-PS
*SLIP SUSPENSION*
CASING HEAD



Permits landing casing at any desired point. Permits drilling and running casing through blowout preventer equipment flanged above. Packing, slips, and slip bowl passes through blowout preventer to seat in body of head. Packing compressed by weight of casing. Hold-down screws aid in compressing packing. Available with or without welding flange, which holds casing down and effects auxiliary seal above slips. Test pressures up to 10,000 lbs.

OIL CENTER TOOL CO.
O-C-T
HOUSTON, TEXAS, U.S.A.
CABLE ADDRESS "OCENTOL"
*"Sold Through Supply Stores"*

B&W
CASING

STRAIGHT
PIPE

ACCURATE
THREAD ALIGNMENT

MILL STOCKS
AT
BEAVER FALLS PENN.
MEMPHIS TENN.

THE
BABCOCK & WILCOX
TUBE COMPANY
BEAVER FALLS
PENNSYLVANIA

T-72

# *Among the* Drilling

*W. E. CUNNINGHAM*, general superintendent for Oil Well Drilling Co. of Dallas, Tex., was in Houston, Tex., the past week making arrangements for the movement of two rotaries from Hobbs, N. M. The company is closing its office at Hobbs, and all business will be handled from the company's general offices at Dallas. Sam P. Todd, tool pusher for the company will have charge of the two rigs which will be placed in operation along the Gulf Coast area.

*HOUSH & THOMPSON* are starting a wildcat about 5½ miles southwest of the Conroe field in Montgomery County, Texas. The well is on the E. B. Clary lease in the William S. Allen Survey, and is being drilled for themselves. Several rotaries of Housh & Thompson are operating in the Fairbanks field, Harris County, Texas.

*ALLEN & MORRIS* have reached a critical depth on Darby Petroleum Co. No. 1 Rooke, a mile north outpost test to the rapidly spreading LaRosa field in Refugio County, Texas. The well is drilling below 5,582 feet, and should pick up the 5,900-foot sand within a day or so. Two other operations are reported in the field for I. J. Allen and Geophysical Service, Inc. In the Luby field, Nueces County, a second well has been started for Seaboard Oil Co. on the Wilson lease. No. 14 Luby, being drilled for the same company, is below 2,900 feet. In the Clara Driscoll field, Nueces County, Texas Co. No. 3 Flinn is drilling below 5,424 feet.

*ROWAN DRILLING CO.* opened a distillate field with completion of Salt Dome Oil Corp. No. 1 Ogden, a wildcat south of Anahuac, Chambers County, Texas. Casing was perforated at 7,515-25 feet, and the well flowed 5 bbls. of distillate and 12 bbls. of salt water per day through a 9/64-inch choke. The well is on a block of several thousand acres, part of which extends into Galveston Bay.

*GLENN H. McCARTHY* is drilling plug on Midwest Royalty Corp. No. 1 Lobit, a prospective pool opener northwest of the Dickinson field in Galveston County, Texas. The hole is bottomed at 9,197 feet, and 7-inch casing was cemented on bottom preparatory to testing several promising sands.

*TRINITY DRILLERS, INC.*, received contract from Transwestern Oil Co. for No. 6-E McFaddin, which is being started in the McFaddin field, Refugio County, Texas. Al Buchanan Production Co. No. 9 Duval County Ranch Co., in the Eagle Hill field, Duval County, has been completed. Drilling continues on six other operations for Phillips Petroleum Co., Transwestern Oil Co., Continental Oil Co., J. W. Heard and Lewis Production Co.

*J. C. TIPPETT*, Shreveport, La., contractor, is completing a good gas and distillate well for Standard Oil Co. of Louisiana in the Village field of Columbia County, Arkansas. The well, No. 1 Crumpler, was reworked after testing salt water in the field sand, and on plugging back it was brought in through perforations this week for the first producer of its kind in the county. It is making 4,000,000 feet of gas and nearly 200 bbls. daily of high gravity oil. Tippett has seven other rigs active in the tri-state area. Two are drilling for Oliphant Oil Corp., and one each for Midstates Oil Corp. and Woodley Petroleum Co. in the Cotton Valley field. Two are active in the Marion County, Texas, sector of Rodessa for Texas Co. and the eighth is completing a gasser in the Pettit lime in a wildcat drilling for Texas Co. in Panola County, Texas. The latter test was carried to 11,303 feet, deepest test drilled in East Texas in many months.

*J. I. ROBERTS DRILLING CO.* of Shreveport, La., is completing a well for Phillips Petroleum Co. in the Schuler field of Union County, Arkansas. A second rig is active, drilling in the field for Phillips.

*F. W. MARTIN DRILLING CO.* has taken over the former C. C. Gilger No. 1 Watts in the Miller County, Arkansas, extension of the Rodessa field. The test is drilling below 4,200 feet.

*PARKER DRILLING CO.* has received the contract for a new Cochran County, West Texas, wildcat. It will be Texas Co. No. 1 Boyd, just east of the Duggan pool and in Labor 56, League 25, Oldham County School Lands.

*HAWKINS & HOWELL* of Tyler, Tex., have contracted to drill another East Central Texas wildcat in the Toole area of Henderson County. It will be for High Point Oil Co. and is in the southeast corner of the M. A. Peavy tract, Franklin Brown Survey, about a mile east of a recent failure by the same company. Contractors will move the rig from Kaufman

H. C. SMITH
ROCK BITS
*INSURE INCREASED SPEED AND ECONOMY*

H. C. SMITH ROCK BIT
available in sizes 5⅝" up to and including 13"

*Send for Folder or see Composite Catalog*

*H C Smith Oil Tool Co.*
GENERAL OFFICES AND PLANT
P. O. Box 431, Compton, Calif.
CLINT WALKER, Division Manager
714 Gulf States Bldg., Dallas, Texas
Illinois Service: Brown-Walters Co., Centralia, Illinois

NEW BEDFORD
PURE MANILA

*"There is no better rope"*

Standco
NO-SMOKE
USE STANDCO BRAKE LINING
for the easiest brake known. It "feeds off" evenly. Standco never scores brake rims. See page 1940, Composite Catalog.
STANDARD BRAKE LINING CO.

# Contractors

County where they are now drilling a test for Tyler & Smith Realty Co.

*SID RICHARDSON* of Fort Worth, Tex., is indicating 1¼-mile north extension to the eastern part of the Keystone pool of Winkler County, West Texas. The test is his No. 1-A Bashara, Section 22, Block 77, Public School Land Survey. It is drilling below 3,425 feet with about 2,200 feet of oil in the hole. Oil has been encountered from 3,343-80 feet, but operators plan to carry it deeper before testing.

*BOSWORTH DRILLING CORP.*, of Odessa, Tex., has completed a large gas producer for Reeves County, West Texas. It is a wildcat in Section 10, Block 56, T-2-S, T.&P. Survey, just south of the Loving County line. Well is producing from the Delaware sand and is bottomed at 3,305 feet. It came in blowing an estimated 17,000,000 feet of gas per day with about 40 bbls. of oil. Railroad Commission gauge for the well showed 3,500,000 feet of sweet, dry gas per day with less than one-tenth of 1 per cent sulfur content. This discovery is expected to stimulate activity in the area.

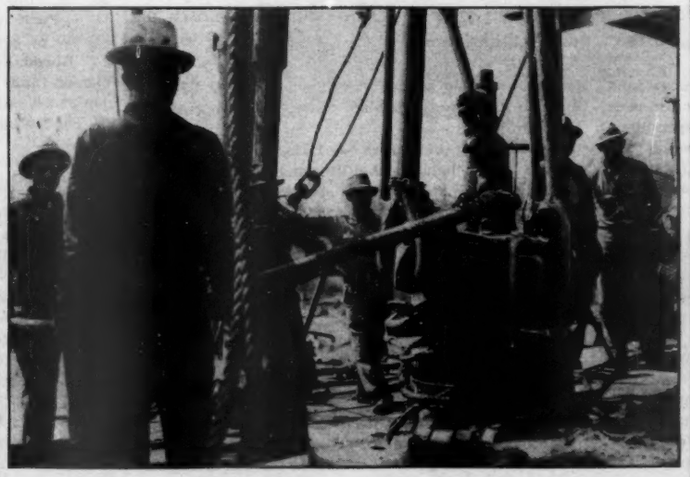
*HELMERICH & PAYNE* of Tulsa, in partnership with Blackwell Oil & Gas Co., have completed another well from the 4,300-foot level of the Hull-Silk pool in Archer County, North Texas. It is No. 2 Wilson, in the pool proper. The well was first completed from the 5,100-foot level then drilled deeper to 5,217 feet when salt water ruined the flow. It was plugged back to 5,100 feet and casing was perforated from 4,325-79 feet where the well came in for an estimated 30 to 40 bbls. per hour, naturally.

*OLSON DRILLING CO.*, Tulsa, is building a derrick preparatory to drilling a well for Olson Oil Co. and others at No. 1 Emma Seberger, in the Vaneck area north of Oklahoma City.

*CAMPBELL DRILLING CO.*, Tulsa, is drilling No. 1 Bitter B, a semiwildcat for Shell Petroleum Corp., a half a mile south of production in the South Trapp area in Barton County, Kansas.

*CORBETT-BARBOUR DRILLING CO.*, Tulsa, completed a well for the Shell Petroleum Corp. which is one of the largest producers in the Bemis pool of Ellis County, Kansas. This is No. 14 Rumsey, SE NE NW Section 23-11-17w. The well has been given an official potential of 3,509 bbls. from the Arbuckle dolomite at a total depth of 3,384 feet. In eight hours it pumped 1,169 bbls. Wells completed on this 160-acre lease have averaged better than 2,500 bbls. per well. Corbett-Barbour Drilling Co. is preparing to drill in No. 15 Rumsey; this contractor will set pipe at No. 16 Rumsey this week.

*REX & MORRIS*, Eldorado, Kans., have a machine at No. 1 Brewer to drill a Butler County, Kansas, semi-wildcat test in NW NE Section 23-28-7e, midway between production in the Brandt pool and a wildcat strike recently completed by Ralph Floyd Lockhart, Wichita operator, on the farm of Ed Lietzke of Augusta.



*Crew of Penrod Drilling Co. filling casing with fluid to get it through the Bodcaw sand in Hunt Oil Co. No. 1 Pardee, deep Cotton Valley test, Webster Parish, Louisiana*


RED BALL CUTTING SERVICE

500 FEET
*of Drill Pipe*

is the average length recovered per cut in the history of our OUTSIDE CUTTING TOOL. Thus the number of round trips is reduced, and your resulting cost is less.

J. S. Abercrombie Co.
21st FLOOR GULF BLDG.
HOUSTON - TEXAS

HUNT NOW OFFERS
these
7 SERVICES:

Wire Line Coring
Complete Bit Line
Rig Unitization
Boiler Repairing
Machine Work
Oil Field Welding
Field Repair Work

HUNT TOOL COMPANY
HOUSTON, TEXAS
HUNT WIRE LINE CORE BARRELS

SERVICE SHOPS:
Houston, Jamerville, Talco, Corpus Christi, Bay City, Alvin, Texas Rodessa, Jennings, Houma, Louisiana

REED'S
'B-R'
DRILLING BIT WITH
*WIRE LINE RETRACTABLE*
CORE BARREL

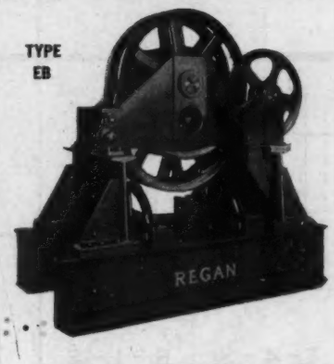
ANY NUMBER OF CORES CAN BE TAKEN REGARDLESS OF DEPTH WITHOUT REMOVING THE DRILL PIPE

REED 'B-R' Drill Collar and 3-Blade Drilling Bit with Core Barrel in position

HARD FORMATION HEAD
(INTERCHANGEABLE WITH SOFT FORMATION HEAD)

REED
ROLLER BIT CO.

TYPE EB




360 TONS
CAPACITY
Regan Crown Block

Equipped with 5, 6 and 7 sheaves, for capacities up to 360 tons; (300 tons 5-sheave) with safety factor of 3½. Sheaves are of chrome alloy cast steel and can be furnished grooved for 1", 1⅛" or 1¼" diameter wire line. A regular catline attachment or a sand sheave attachment is available where necessary. Extremely rugged construction. Regan staggered bearing principle. Ask for Bulletin or see Composite Catalog.

Regan
Forge & Engineering Co.
San Pedro California

Mid-Continent Office—1502 Maury St., Houston.
Okla. Rep. — Boyaird Supply Co., Tulsa.
Kansas Rep. — Boyaird Supply Co., Wichita.
N.Y.C. Office—17 Battery. G. R. Woods, Rep.

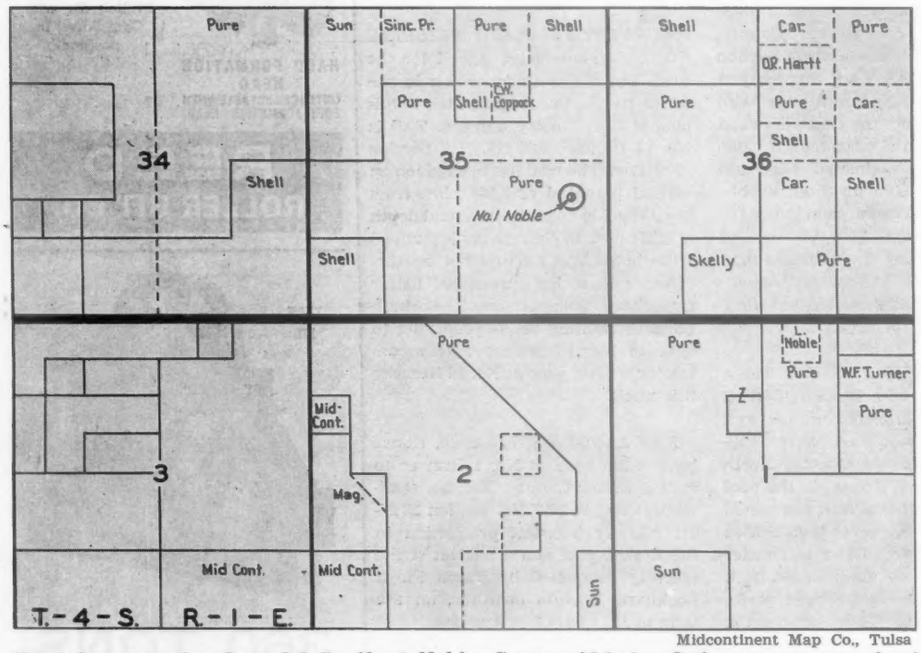
# Oklahoma Operations

By
DAL DALRYMPLE

# Deep Zone at Fox Extended, Four Tests Seek Oolitic Pay

The deep zone in the Fox field, Carter County, Oklahoma, was extended southward at Gulf Oil Corp. and others No. 1-7 Lester, NW NW Section 35-2s-3w. It flowed 739 bbls. of 30.9-gravity oil net in 15 hours, with gas gauging 12,500,000 feet. Production was from oolitic lime at 8,142 feet, total depth. The well was shot and acidized several times, a total of 40,000 gallons of acid having been used. It was shut in for tankage. Four other deep tests are being drilled in this field.

An effort to make a producer at an old wildcat north of Norman in Cleveland County is being made by Nels Burton, drilling contractor, and others, who were moving in tools at Hollenbach and others No. 1 Norman, NW NW NE Section 17-9n-2w. Earlier this year it was drilled to 7,695 feet in dry Wilcox sand and abandoned but not plugged. Leases have been cleared and a new deal made to test the upper Simpson zone through perforations. A Schlumberger test showed saturation in the Simpson zone at 7,290-7,600 feet. Casing was to be run and cemented on bottom, preparatory to perforating and testing.




Midcontinent Map Co., Tulsa

*Work has started at Pure Oil Co. No. 1 Noble, Section 35-3s-1e, Ordovician test north of Ardmore, Carter County, Oklahoma*

Pure Oil Co. has completed derrick at No. 1 Noble, C NE SE Section 35-3s-1e, north of Ardmore in Carter County, and tools were being moved in. It is to be a 9,000-foot test, with Ordovician pay as the goal.

Carter Oil Co. and others No. 1 Smith, C SE SW Section 26-5n-8w, deep test in the Chickasha gas field, Grady County, was drilling below 4,514 feet in broken sand, with slight shows of oil and gas reported from 4,125 feet. This was scheduled to be a 10,000-foot test unless big production was found above that depth. Continental Oil Co. No. 1 Proctor, C NW Section 28-10-20w, deep wildcat southeast of Elk City in Washita County, was making hole below 8,310 feet.

A 40-acre spacing order covering Sections 4, 5, 6, 7, 8, 9, 16, 17 and 18-1n-2e, has been ordered for the new Davis gas field in Murray County, recently opened at Shell & Revels No. 1 Wolfe, SE SW Section 8-1n-2e. Lone Star Gas Co. has made connections at the well and is taking the gas. A second well is being drilled in the area.

An auction sale of oil, gas and other mining leases will be held at the Five Civilized Tribes agency in Muskogee November 7, A. M. Landman, superintendent, announced. Offerings are in 16 eastern and southern Oklahoma counties.

## Wildcat Operations

M. J. Mitchell No. 1 Westfall, SE cor. Section 33-2n-4w, east of Doyle in Stephens County, was drilled to 4,505 feet, 5 feet below contract depth, and was dry and abandoned. It had a showing of oil in sand at 1,735-50 feet and sand and shale with a showing of oil at 1,750-72 feet. No showings, other than water, were reported below that depth.

M. W. Moser and others No. 1 Holcomb, SE SW NE Section 19-18-8, between the Olive and Drumright areas in Creek County, was dry and abandoned at 3,018 feet, total depth. A slight showing of oil and gas was reported in Tucker sand at 2,935-50 feet, but water intruded after a shot; and in sand at 2,954-87 feet, but the hole filled with water.

Jim Turner and others No. 4 Collins, NE NW SE NE Section 18-4s-10w, on an Indian Territory Illuminating Oil Co. farmout in Cotton County, had a showing of oil in core at 1,207-17 feet, but it was abandoned at 1,300 feet when Schlumberger test indicated water in cores.

New wildcats included W. C. Wood No. 1-A Aldridge, SW NW NE Section 5-8-8, northeast of Wewoka in Seminole County, location; and Pure Oil Co. No. 1 Noble, C NE SE Section 35-3s-1e, an 8,500-foot test north of Ardmore in Carter County, cellar and pits.

Two wells designated as wildcats but in the Oklahoma Panhandle sector of the Hugoton gas field, were completed to open new producing areas in Texas County. Republic Natural Gas Co. No. 1 Blackmer, C Section 15-6n-15ecm, Texas County, had lime at 2,703-2,836 feet, total depth, and produced 20,800,000 feet of gas.

Same company's No. 1 Clinkenbeard, NW NW SW Section 21-6n-14ecm, was completed for 14,800,000 feet of gas daily from lime at 2,740-2,848 feet, total depth.

Four new Texas County tests were announced: Republic Natural Gas Co. No. 1 Dubalohn, C Section 21-6n-15ecm, drilling below 2,365 feet; same company's No. 1 Michael, NW NW NE Section 29-6n-15ecm, location; the company's No. 2 Ferguson, C Section 4-6n-16ecm, location, and the company's No. 1 Ferguson, C Section 23-6n-16ecm, drilling below 2,625 feet.

## Pottawatomie County

Four new producers were completed and two old wells were reworked and recompleted in the St. Louis field, Pottawatomie County.

Alma Oil Co. No. 1 Rhodd, SE NE SW Section 32-7-5, found dolomite at 4,080-4,110 feet, total depth, was acidized, swabbed 450 bbls. of oil in 18 hours and pumped 375 bbls. of oil and 375 bbls. of water in 24 hours.

Same operator's No. 1 Canfield, NW NE SW Section 33-7-5, pumped 450 bbls. of oil and 450 bbls. of water in 24 hours from Wilcox sand at 4,250-52 feet, total depth.

Pioneer Drilling Co. No. 2 Billington, SW NE SW Section 36-7-4, had dolomite at 4,168-4,218 feet, total depth, was treated with 5,000 gallons of acid and pumped 218 bbls. of 38.5-gravity oil in 24 hours, with 2,000 bbls. of water.

H. Berkey No. 3 School Land, SE NE NE Section 36-7-4, pumped 200 bbls. of oil and 1,000 bbls. of water in 24 hours after acidizing. Production was from dolomite at 4,278-95 feet, total depth.

Elbar Oil Corp. No. 2 Hathcock, SE SE SW Section 11-7-4, an old well, was deepened from 3,140 feet to 3,153 feet and pumped 85 bbls. of oil and 75 bbls. of water daily.

E. W. Jones No. 1 Gilbreath, SE cor. Section 25-7-4, originally bottomed at 4,224 feet, was deepened to dolomite at 4,270-88 feet, total depth, and pumped 180 bbls. of oil and 100 bbls. of water in 24 hours.

New work in Pottawatomie County: Harry Schaffer No. 1 Green, NW SW NW Section 5-6-5, location; Rogers & Rogers No. 2 Stockton, SE SE SW Section 25-7-5, building rig; Alma Oil Co. No. 4 Smith, SE SW NE Section 32-7-5, location; Trigg and Alma Oil Co. No. 1 J. Rhodd, NE SW SE Section 32-7-5, location; same operators' No. 2 E. Rhodd, SE NW SE Section 32-7-5, cellar and pits; Vierson Oil & Gas Co. No. 1 P. Rhodd, NE NE SW Section 32-7-5, building rig; Alma Oil Co. No. 1-A Coleman, SW NE NW Section 33-7-5, building rig.

## Seminole County

Hall, Troup & Moore No. 2 Sanders, NE SE SW Section 27-6-5, West Konawa pool, Seminole County, had Senora sand at 2,671-87 feet, total depth, and flowed 300 bbls. of oil in 24 hours.

J. Smith No. 4 Austin, SW NE SE Section 32-7-6, Dora area, was shot at 2,866-89 feet and flowed 200 bbls. of oil in 24 hours. Boggy sand was penetrated from 2,865 to 2,890 feet, total depth.

Rogers & Rogers No. 1-A Fisher, SW cor. section 25-7-5, an old well in the South Hazel area, was plugged back from 2,970 feet to 2,960 feet, was shot, pumped 30 bbls. of oil in 24 hours and recompleted.

Indian Territory Illuminating Oil & Gas Co. No. 4 Davis, SE SW SW Section 13-8-6, an old well in the Bowlegs area, pumped 15 bbls. of oil and an equal amount of water in 24 hours after plugging back from 4,301 feet to 3,451 feet in Gilcrease sand.

Vierson Oil & Gas Co. No. 1 Community, SE NW

SW Section 25-5-7, an old well in the Allen district, was deepened from 2,259 feet to 2,375 feet, water intruded and it was plugged back to 2,257 feet, pumped 2⅛ bbls. of oil daily and was recompleted.

### Estimated Daily Production

Estimated daily production for Oklahoma for the week ending October 22, and for the preceding week was as follows:

| | Oct. 22 | Oct. 15 |
|---|---|---|
| Allen | 6,450 | 6,675 |
| Billings | 4,600 | 4,575 |
| Burbank | 7,675 | 7,825 |
| South Burbank | 10,375 | 10,425 |
| Balance Osage | 17,000 | 18,400 |
| Blackwell district | 4,275 | 4,250 |
| Bristow-Slick | 6,650 | 6,725 |
| Chandler | 1,950 | 1,975 |
| Crescent | 3,975 | 3,925 |
| Cromwell | 3,400 | 3,425 |
| Cushing-Shamrock | 10,550 | 10,700 |
| Duncan district | 4,200 | 4,325 |
| Edmond | 4,925 | 4,775 |
| Fish | 3,025 | 3,150 |
| Fitts | 38,025 | 37,875 |
| Jesse | 2,250 | 2,425 |
| Graham-Fox | 4,425 | 2,500 |
| Gray | 925 | 900 |
| Healdton | 9,775 | 8,750 |
| Hewitt | 3,600 | 3,725 |
| Keokuk | 4,100 | 4,150 |
| Konawa | 1,275 | 1,300 |
| Lucien | 8,225 | 8,575 |
| Moore | 4,550 | 4,575 |
| Oklahoma City | 104,950 | 108,925 |
| Olympic | 4,625 | 4,700 |
| Ramsey | 2,450 | 2,100 |
| Sasakwa | 1,400 | 1,425 |
| Sholem-Alechem | 2,475 | 2,450 |
| Seminole district: | | |
| Bowlegs | 8,075 | 8,225 |
| Carr City | 3,125 | 3,050 |
| Dora | 4,650 | 4,775 |
| Earlsboro | 4,725 | 4,850 |
| South Earlsboro | 425 | 425 |
| East Earlsboro | 4,500 | 4,550 |
| Little River | 6,675 | 6,775 |
| East Little River | 900 | 900 |
| Maud | 650 | 625 |
| Mission | 1,325 | 1,375 |
| Seminole | 7,850 | 8,350 |
| East Seminole | 1,600 | 1,625 |
| Searight | 2,900 | 2,950 |
| Total Seminole | 474,000 | 48,475 |
| St. Louis-Pearson | 22,775 | 23,225 |
| Tatums | 2,475 | 2,300 |
| Tonkawa-Garber-Thomas | 4,250 | 4,225 |
| Wewoka | 2,150 | 2,175 |
| Yale-Jennings | 3,925 | 3,900 |
| Other pools | 85,700 | 87,400 |
| Total Oklahoma | 450,775 | 457,225 |

### Pontotoc County

J. E. Crosbie, Inc., No. 3-B Dawes Harden, NE SW NE Section 30-2n-7, Fitts field, Pontotoc County, was plugged back from 3,628 feet to 2,804 feet, was shot through perforations in Cromwell sand at 2,610-2,544 feet and pumped 25 bbls. of oil in 24 hours.

Shell Petroleum Corp. No. 1 McKinley, SW SW NE Section 23-2n-7, an old Fitts well, was plugged back from 3,931 feet, total depth, to 3,108 feet, then to 2,076 feet, then to 1,649 feet, then to 1,449 feet, shot each time, failed to develop production and was dry and abandoned.

McKeown No. 1 Flatt, NW NE SE Section 36-5-4, an old well in the Bebee pool, was plugged back from 2,925 feet, total depth, to 2,600 feet, was shot and pumped 25 bbls. of oil and 10 bbls. of water in 24 hours, recompleted.

Vierson Oil & Gas Co. No. 1 Hatcher, SW NW NW Section 22-5-5, was an abandoned location.

Ed Davis No. 3 Gann, C N half SE NW Section 15-4-7, East Ada area, was shut down at 400 feet. Farmers Mutual No. 2 School Land, SW SW NE Section 16-5-5, was a rig.

### Payne County

The sixteenth producer in the Ramsey pool, Payne County, was a completion of the past week. It was Mid-Continent Petroleum Corp. and others No. 5 Columbia, SW NE SW Section 18-18-2e. Wilcox sand was found at 4,736-63 feet, total depth. It flowed 714 bbls. of oil in three hours and potential was estimated at 5,713 bbls. of oil. Gas gauged 2,750,000 feet.

Newest test to be started in the Ramsey pool is Mid-Continent Petroleum Corp. and others No. 2 Gray, NW SE SW Section 18-18-2e, digging cellar.

### Kay-Noble Counties

Shell Petroleum Corp. and Continental Oil Co. No. 6 Horn, NE SE NW Section 8-28-1w, Braman district, Kay County, missed Wilcox sand, had Arbuckle lime at 3,556-74 feet, total depth, and was dry and abandoned.

Superior Oil Corp. No. 1 Faw Faw, SW NE SE Section 21-22-1e, Noble County, found Layton sand at 3,363-97 feet, total depth, and was dry and abandoned.

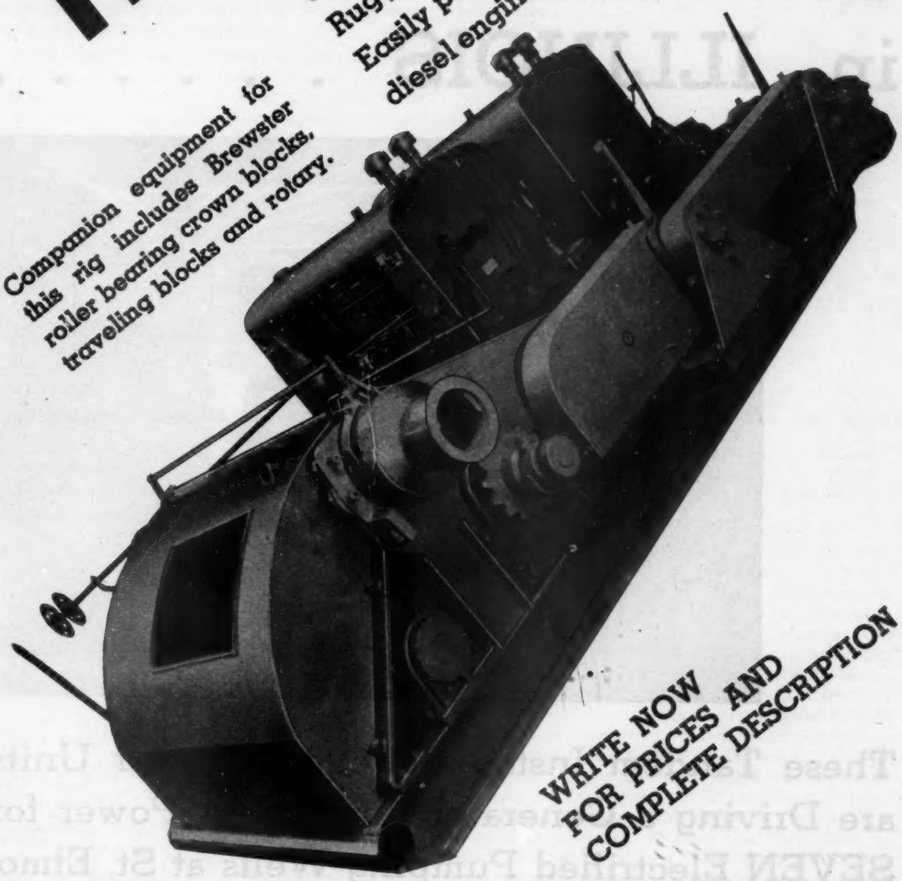
### Latimer County

LeFlore County Gas & Electric Co. No. 28 Ramer,


Model 170, Made to Order for ILLINOIS

Here is a drilling machine that fits drilling conditions in Kentucky and Illinois to a tee. Rugged construction, compactly unitized. Easily portable. Powered with either gas or diesel engines, for 4000' and 5000' drilling.

Companion equipment for this rig includes Brewster roller bearing crown blocks, traveling blocks and rotary.



WRITE NOW FOR PRICES AND COMPLETE DESCRIPTION

THE BREWSTER COMPANY, INC.

PHONE 2-3181 SHREVEPORT, LA.

Branches—New Iberia, Houma, Lake Charles, Rodessa

NW Section 12-6-22, Latimer County, topped Hartshorne sand at 1,980 feet, total depth 2,090 feet, was shot and produced 518,000 feet of gas, with 425 pounds rock pressure.

Same company's No. 29 Bascom-Maxey, C S half S half NW Section 2-6-22, was a location.

### Carter County

Shell Petroleum Corp. No. 24 Horton, Section 6-4s-3w, Healdton field, Carter County, found Healdton sand zone in Deese pay at 1,073-1,182 feet, total depth, plugged back to 1,170 feet, and pumped 4 bbls. of oil and 83 bbls. of water in 24 hours.

Shell Petroleum Corp. No. 25 Johnson, NW SE SW Section 4-4s-3w, was drilling with machine below 355 feet.

### Southwestern Oklahoma

Magnolia Petroleum Co. No. 9 Lackey, NW cor. Section 11-5-9w, Cement field, Caddo County, penetrated broken sand zone at 3,720-3,809 feet in Hoxbar formation, was bottomed at 4,059 feet, plugged back to 3,820 feet and was completed for 1,132,000 feet of gas daily.

Olson Drilling Co. No. 2 Rigney, NE NE NW Section 12-5-9w, Cement field, had a junked hole and was abandoned at 6,532 feet, total depth. The well blew in and was wild for some time. Gas was killed after use of thousands of sacks of cement, but subsequent fishing and drilling troubles caused abandonment of the hole.

Same company's No. 3 Rigney, NE NE NW Section 12-5n-9w, twin well to No. 2, was a cellar.

George L. Pace and others No. 4 Caldwell, NW SW SE Section 21-2s-7w, Comanche pool, Stephens County, had Permian sand at 370-375 feet, total depth, and produced 20,000 feet of gas daily.

Tri Oil Co. No. 1-B Schick, NE Section 27-1s-8w, Empire pool, Stephens County, had showings of oil from 1,620 feet but was abandoned at 2,367 feet, total depth.

J. G. Beard No. 6 Willis, SW SE SW Section 23-2s-6w, Stephens County, was skidding rig onto location.

S. & S. Oil Corp. No. 1-A Kirkers, NE Section 29-2n-10w, Lawton area, Comanche County, was dry and abandoned at 1,018 feet, total depth.

## Southwest Texas Fields

*(Continued from Page 197)*

### Nueces County

Luby field: Stanolind Oil & Gas Co. No. 14 Spessard, sand 4,352-60 feet, 152 bbls., eighth-inch choke.

### Refugio County

LaRosa field: Geophysical Service, Inc., No. 3 Rooke, perforated casing 5,902-05½ feet, 130 bbls., 7/64-inch choke. Quintana Petroleum Co. No. 26 Heard, 5,925 feet, 1,300 bbls., three-eighths inch choke; No. 1 Williams, 5,929 feet, 1,376 bbls., three-eighths inch choke.

### San Patricio County

East White Point field: Plymouth Oil Co. No. 1 Flinn, perforated casing 5,675-78 feet, 124 bbls., 7/64-inch choke; No. 2 Sparks, perforated casing 5,669½-73 feet, 145 bbls., 7/64-inch choke. Plymouth field: Plymouth Oil Co. No. 104 C. Welder, 5,680 feet, 97 bbls. in 20 hours, eighth-inch choke.

### Starr County

Ricaby field: G. E. Dodd No. 6 Wood, sand 1,778-88 feet, 50 bbls., half-inch choke.

### Victoria County

East Placedo field: Stanolind Oil & Gas Co. No. 4 Vandenberge & Hill, perforated casing 6,367-72 feet, 172 bbls., eighth-inch choke.

### Zapata County

Charco Redondo field: Ed Mathis No. 60 Garcia, 1,102 feet, abandoned. Comitas field: Gilcrease Oil Co. No. 36-B Haynes, 1,237 feet, abandoned. Escobas field: Texas Co. No. 121 Measles, 1,319 feet, 50 bbls. fluid per day, 25 per cent oil, pumping. Texas Co. No. 122 Measles, sand 1,294-1,306 feet, 35 bbls., pumping.

## "The Practical Geology of Oil"

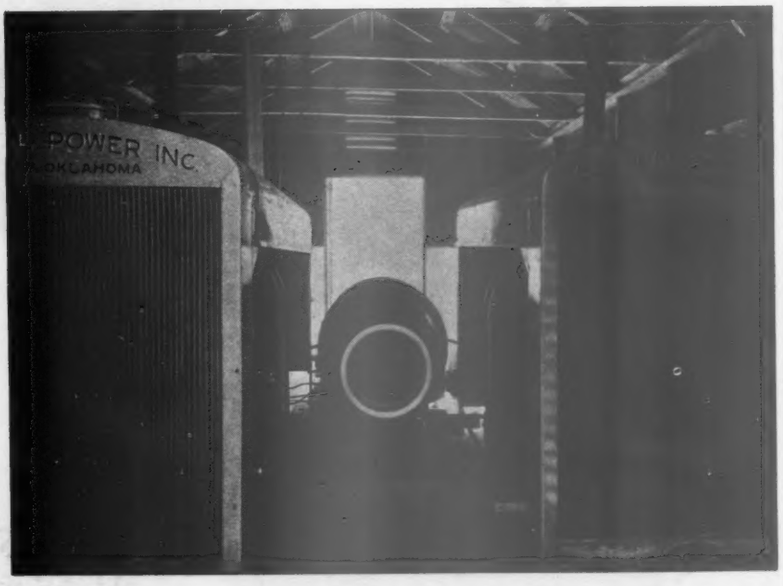
Most people who have any interest in oil are likewise interested in the geology of oil deposits. Many geologies are available and most have been written for the geologist and geophysicist and are therefore not suitable for the layman. William W. Porter, a consulting geologist, and member of the American Association of Petroleum Geologists and the American Institute of Mining and Metallurgical Engineers, has recently written a little book entitled "The Practical Geology of Oil" intended particularly for the layman or anyone who has a general interest in this broad subject.

The book is written in a nontechnical style and simple words and phrases are used. Geological problems and names are discussed in the opening chapters and then rocks are described and classified. The action of erosion through geological time is explained. Fossils are described in simple terms and then the author takes up the formation of rock strata by sedimentation. As an introduction to structural geology the author describes the crust of the earth.

With these preliminary subjects covered the balance of the book is devoted to the application of geology to the location of gas and oil fields and concludes with some discussion of the practical side of purchasing interests in oil fields. The last chapter is devoted to the subject of literature recommended to the reader for more details of the many subjects that have been briefly discussed. The book contains 145 pages and is well illustrated.

"The Practical Geology of Oil" may be purchased through the Book Department of The Oil and Gas Journal at the established retail price of $1.50, express prepaid (postage extra outside the United States), and a copy will be forwarded promptly upon receipt of check or money order for that sum. Where payment or company purchase order is not provided, the book will be sent c.o.d. to avoid delay.


# Low Cost Power in ILLINOIS . . . . . .




**These Tandem Installed General Power Units are Driving a Generator Furnishing Power for SEVEN Electrified Pumping Wells at St. Elmo.**

**Proving again that General Power Conversions of Ford V-8 Engines are the real buy where dependability, economical operation, and low first cost are necessary to show profits from pumping wells.**

**These units are delivering cheap power from gasoline in a field where natural gas is scarce.**

**For prices and information—Write, Wire, or Phone**

**GENERAL POWER, INC.**

**QUAPAW, OKLAHOMA** **Phone 64**

# North Louisiana, Arkansas

By GEORGE WEBER

# Reserves of Distillate and Gas Found in Three States

SHREVEPORT, La., Oct. 24.—Discovery of new gas and distillate reserves predominated in the week's developments of the tri-state area of North Louisiana, Arkansas and East Border Texas. Some of these represented new discoveries, while others brought disappointment to operators in search of oil production. A total of six such wells were centers of attention in the district.

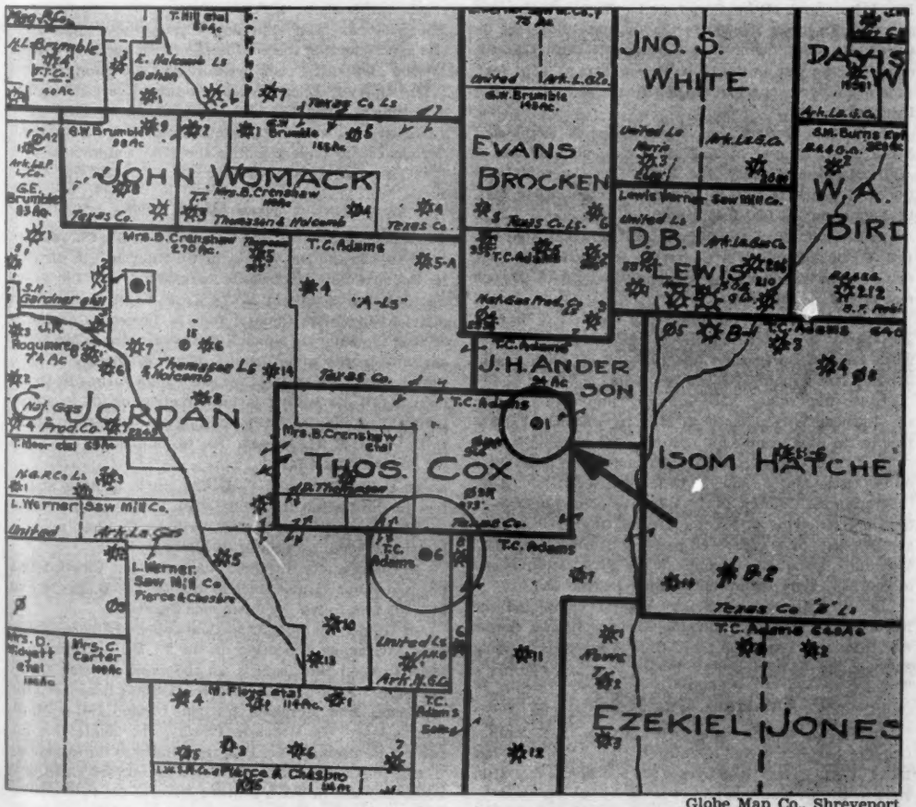
In addition to the gas-distillate developments, a show of saturation was encountered in the deep wildcat which the Magnolia Petroleum Co. is drilling in the old shallow Carterville gas field in northern Webster Parish. The Magnolia test, No. 1-C Pardee Lumber Co., C NW NE Section 17-23-11 topped the lower Marine formation last week at 7,998 feet. In that formation during this past week a sand section was topped at 8,505 feet, and five feet of the sand was cored, to 8,510 feet. The sand showed good oil stain, and operators were debating whether or not to make a drill stem test. Upon coring further, however, black shale was encountered at 8,510 feet, and on latest reports, the company was coring in the black shale below 8,532 feet.

This deep test is the most recent of a number of exploratory wells drilled to depths below old producing sands in North Louisiana fields. Operators are going deeper in the Pardee No. 1-C in expectation of finding other sands in the series which corresponds to the lower Marine production in Cotton Valley, the most productive to date in North Louisiana. At the same time the company is drilling in No. 4 Branton, in the Shongaloo field, where several months ago deep gas and distillate production was discovered in their first deep field test.

The deepest current wildcat test in the district, Texas Co. No. 1-C Adams, in the Thomas Cox Survey of eastern Panola County, Texas, was completed and is a small gasser in the Pettit zone of the lower Glen Rose. The completion was a disappointment to operators who had expected larger production in deeper sands. The hole was drilled to 11,303 feet and, following a fishing job, operators shot the drill string at 10,246 feet and proceeded to plug back and test the shows which they had found on the way down. Four successive tests from 8,930 to 7,150 feet showed salt and brackish water, and after perforating at 5,724-40 and 5,625-60 feet, the well was completed making about 3,000,000 feet of gas daily with a rock pressure of 1,250 pounds.

To the north in Marion County, Arkansas Louisiana Gas Co. has another gas well, southwest of the Jefferson field extension of Rodessa. No. 1 P. E. Hussey, in the Charles Lockhart Survey, tested an estimated 5,000,000 feet of gas in the Hill sand at 5,907-66 feet. The test was made in 15 minutes using three-eighths inch chokes at the top and bottom, and a working pressure of 155 pounds was recorded. In a test made lower in the formation at 5,992-6,016 feet from three to five million feet of gas was indicated, together with drilling mud, a slight show of oil and brackish water.

Then a drill stem test made at 6,033-51 feet showed 60 feet of mud, cut with oil, and 20 feet of salt water, in 25 minutes using three-eighths inch chokes top and bottom. A string of 5½-inch casing was set at 6,045 feet and perforations were shot at 5,902-37 feet in the Hill sand. The well showed an estimated 4,000,000 feet of gas on open flow, with casing pressure of 1,500 pounds and tubing presure 1,300 pounds. Total depth is 6,012 feet and old total depth 6,051 feet. Operators are acidizing the formation.




Globe Map Co., Shreveport

*Texas Co. No. 1 Adams is a 3,000,000-foot gasser in the Pettit horizon in the Bethany area of Panola County, East Texas, first well to produce from the Pettit in the field*

## Estimated Production

Estimated daily gross production all companies week ending October 21, 1938:

**NORTH LOUISIANA**

| | |
|---|---|
| Bellevue | 685 |
| Caddo light | 3,990 |
| Caddo heavy | 2,500 |
| Converse | 485 |
| Cotton Valley heavy | 80 |
| Cotton Valley light | 10,555* |
| Cross Lake | 950 |
| De Soto & Red River | 1,330 |
| Elm Grove | 320 |
| Haynesville | 2,895 |
| Holly | 90 |
| Homer | 2,620 |
| Lisbon | 3,105 |
| Pleasant Hill | 100 |
| Rodessa | 43,495 |
| Sarepta-Carterville | 390† |
| Sligo | 1,965 |
| Sugar Creek | 340 |
| Urania | 2,655 |
| Zwolle | 4,000 |
| Total | 73,550 |

**SOUTH ARKANSAS**

| | |
|---|---|
| Buckner | 1,255 |
| Champagnolle | 1,400 |
| El Dorado | 1,835 |
| Lisbon | 270 |
| Miller County | 370 |
| Nevada | 630 |
| Rodessa | 5,100 |
| Schuler | 18,130 |
| Smackover light | 2,025 |
| Smackover heavy | 15,925 |
| Stephens | 550 |
| Troy | 1,150 |
| Urbana | 1,170 |
| Village | 655 |
| | 50,465 |

Texas side of Rodessa field 30,895 bbls. daily.

*3,690 bbls. is distillate.
†170 bbls. is distillate.

## Shreveport Field

A set-back was encountered in the development of the Shreveport field in the past week. R. E. Allison No. 1 State, one-half mile south of the same operators' two producers, cored porous lime in the Pettit formation, which produces in the wells to the north, at 5,533 feet. An oil string of 7-inch casing was set at 5,604 feet with total depth at 5,618 feet. Upon perforating at 5,575-90 feet, operators found the formation dry at that level. A second perforation at 5,540-70 feet tested an estimated 5,000,000 feet of gas through a three-sixteenths choke. Tubing presure was 1,600 pounds and casing pressure 300 pounds. This comes as a surprise, in a well so close to good oil producers. However, the Pettit lime, as shown in production in the Lisbon field, is highly unpredictable, and the gasser does not necessarily prove all the acreage in the vicinity of the test.

A second gas blow-out in the Shreveport field occurred in a well one mile to the southeast of R. E. Allison No. 1 State. Rodessa Oil & Refining Co. No. 1 Chandler, in drilling the Tokio sand, went out of control and blew gas through the relief line over night. The well was equipped with a blowout preventer, but operators waited until morning to close it in, due to the danger of lights near the rig while it was blowing gas. The test made an estimated 15,000,000 feet, further proving the considerable gas reserve in the area, and also further impressing operators with the need for care in conditioning mud and drilling with proper caution through the high pressure gas sand. The well was bottomed at 2,419 feet when it blew out, and was killed and was drilling ahead at the close of the week.

Southwest of the field, Hollywood Oil Corp. No. 1 C. & B. Realty Co., a five-mile outpost to production in the city field, was definitely out of the picture so far as

*(Continued on Page 215)*

# Eastern Field Report

By STAFF CORRESPONDENT

# 300-Barrel Well in Ancient Greene County, Penna., Field

PITTSBURGH, Pa., Oct. 24.—The deep test drilling on the Eliza Allen heirs farm by John T. Galey and others in South Beaver Township, Beaver County, Pennsylvania, has reached a depth of 4,770 feet. The Oriskany sand is due to be topped in a few days. When it is reached the well will be shut down, a Halliburton line run and proper fittings will be installed to control the drilling in, should gas be struck.

## SOUTHEAST OHIO

In Athens County, Ohio, Gross & McCune completed a dry hole at 580 feet on the Pearl and Nettie Sapp farm in Section 13, Lodi Township.

In Columbiana County, Cushing Gas Co. completed a deep dry hole on the Nila McIntire farm through Clinton sand at 4,750 feet in Section 28, Madison Township.

In Hocking County, Preston Oil Co. has a 2-bbl. well from Clinton sand in No. 1682 Sunday Creek Coal Co. in Section 23, Ward Township. The total depth was 3,498 feet.

## SOUTHWEST PENNSYLVANIA

In North Strabane Township, Washington County, Pennsylvania, Keystone Gas Co. deepened No. 4 John Ross to 2,723 feet. It gauges 135,000 feet of gas a day from the Fifth and Bayard sands. In South Franklin Township, New Oil & Gas Co. deepened No. 1 Clarissa Ramsey to 3,091 feet. The Fifth sand was topped at 3,064 feet, with oil at 3,075-81 feet. It will make 4 bbls. a day.

In Buffalo Township, Washington County, R. M. Duden and others are shut down at 2,450 feet on the Antonio Provenzano test. In Chartiers Township, Washington County, the Canonsburg Steel & Iron Co. is drilling at 350 feet in No. 2 on its own property. In Hanover Township, Washington County, Braden & Herron had a light show of oil in the W. N. Bell No. 3. In Nottingham Township, Washington County, Beedle & Clark were drilling at 1,800 feet in No. 2 Pittsburgh Coal Co. In South Strabane Township, J. G. and E. H. Tague are down 2,170 feet in the No. 8 R. G. Lutton.

### Greene County

In Aleppo Township, Smith & McCracken completed their fishing job and are drilling at 3,230 feet in No. 1 A. Hughes.

In Center Township, J. B. Orndoff has started to drill past the tools in No. 2 G. M. Scott at 1,635 feet. The Equitable Gas Co. is down 2,805 feet in deepening No. 1 H. W. Ewart. Charles Mong and others commenced deepening No. 3 John Metz from a depth of 3,122 feet. There was a showing of oil in the Nineveh 30-foot sand at 3,130-35 feet. At 3,137-41 feet the well started flowing, and in the first 24 hours 300 bbls. of oil flowed into the tanks. The well has been shut down at 3,142 feet.

In Washington Township, the Equitable Gas Co. is building the rig for No. 3 T. J. Huffman.

### Deep Tests

On Chestnut Ridge, Fayette County, Wasson & Co. completed a fishing job on the J. H. Sorg farm in North Union Township and are drilling at 6,270 feet.

In South Union Township, New Penn Development Corp., William Snee and others are down 2,125 feet on the Indian Creek Coal Co. lease. The Peoples Natural Gas Co. is drilling at 3,540 feet in the Piedmont Coal Co. lease.

In Springhill Township, the Convex Glass Co. is shut down for a new cable in its test on the Paul Dunham farm.

In Mercer County, Carnegie Natural Gas Co. is down 1,115 feet on the A. S. McCullough farm in Jefferson Township.

## WEST VIRGINIA

Five oil wells were completed in West Virginia during the past week. In Clay County, the Boggess Oil & Gas Co. completed No. 2 W. A. and Edward Thomas in Henry district in the Big Injun sand at 1,960 feet. It will make 10 bbls. a day. In Doddridge County, S. J. McIntyre completed the No. 1 Arzana Bates in McClellan district in the Big Injun sand at 2,030 feet. It is good for 5 bbls. In Grant district, Ritchie County, Astron Oil Co. completed No. 15 Herman Strasburg at 667 feet, in Salt sand, showing for 1 bbl. a day. In the same county, in Murphy district, R. C. Jackson & Co.'s test on the Andrew Jordan farm is a 15-bbl. well in Squaw sand at 2,145 feet. In McElroy district, Tyler County, G. R. Kerns completed No. 2 G. R. Kerns at 2,359 feet. It is showing for 20 bbls. a day from Big Injun sand.

In Braxton County, McCall Drilling Co. completed No. 7 H. C. Clauser in Otter district at 2,310 feet. It is a gas well gauging 100,000 feet a day.

In Clay County, Pittsburg & West Virginia Gas Co.'s Lula C. Hardman test in Otter district was dry and abandoned at 2,838 feet.

In Doddridge County, Hope Natural Gas Co. completed No. 7780 G. W. Farr in West Union district at 1,900 feet. Big Injun sand was at 1,724-1,805 feet with gas at 1,750-1,804 feet, gauging 375,000 feet a day.

In Gilmer County, the Gilmer County Gas Co. No. 2 Iva Gerwig in Center district was completed at 2,103 feet. It gauged 200,000 feet a day after shot in the Big Injun sand. Otho Ganer and others completed a gas well, gauging 250,000 feet a day, at 1,968 feet on the F. H. Stout farm. The Carnegie Natural Gas Co. completed its test on the H. H. Boggs farm at 2,151 feet. It is a gas well gauging 225,000 feet a day in the Big Injun sand.

In DeKalb district, Hope Natural Gas Co. completed No. 2 G. C. Weaver at 2,117 feet, a small gas well.

In Harrison County, the Eagle Gas Co. completed the A. I. Harbert test in Eagle district at 3,340 feet. It is gauging 250,000 feet a day.

In Lewis County, Goodwin & Watson completed No. 1 G. C. Burkhammer in Court House district, at 2,551 feet. Gordon sand was at 2,416-2,525 feet with 230,000 feet of gas at 2,468 feet.

In Logan County, Boone County Coal Corp., having shot No. 12-L in Logan district, completed the well at 2,943 feet, in Berea sand at 2,911-42 feet, with gas at 2,912-33 feet gauging 700,000 feet a day.

In Ritchie County, Z. N. Connolly completed a test on the Earnest Wilson lease in Murphy district at 1,883 feet in the Big Injun sand, gauging 115,000 feet a day.

In Tyler County, Neely Oil Co. completed a dry hole on the Oscar Martin farm in Union district at 1,777 feet.

In Wetzel County, J. T. McIntire completed No. 1 Clarence Erlewine in Proctor district in Cow Run sand at 1,009 feet. It is a gas well gauging 320,000 feet a day. Wasmuth & Callahan completed the J. W. Monroe test at 640 feet. It is a gas well gauging 143,000 feet.

In Wirt County, the Realty Oil Co. completed the No. 1 C. C. Menfee in Burning Springs district in the Big Injun sand at 1,850 feet. It is a gas well gauging 350,000 feet a day.

### Oriskany Gas Field

In the Kanawha County Oriskany gas field, Mullins Gas Co. completed No. 1 Manfred Fisher, in Poca district, at 5,114 feet. It gauges 8,000,000 feet a day after shot in the Oriskany sand.

In Elk district, the Columbian Carbon Co., in its W. B. Foggarty test, topped the Oriskany sand at 5,014 feet, with 1,000,000 feet of gas at 5,025 feet. The crew was drilling at 5,063 feet. Same company is drilling in the Ida Hughart test at 3,215 feet. The United Carbon Co. is drilling at 1,705 feet in the Van Canterbury test.

In Poca district, the Poca Fork Oil & Gas Co. will shoot the Levi Combs test. The depth of the hole is now 5,263 feet. Lima Gas Co. reached the Oriskany sand at 5,123 feet with gas showing for 5,000,000 feet a day in No. 1 A. T. Mairs and is drilling at 5,143 feet. The Spartan Gas Co. topped the Corniferous lime at 4,772 feet and is drilling at 4,784 feet in No. 1 Lock and A. E. Fisher, in their H. C. Painter test at 4,200 feet, and at 2,282 feet in the F. M. Ray. The Meigs Development Co. is down 1,780 feet in the Lola and Homer Fields test.

In the same district, Columbian Carbon Co. is down 5,133 feet in the W. H. Odell and others' test, and at 4,140 feet on the W. H. Miller. United Carbon Co. is drilling the J. H. Burdette test at 750 feet and William Moss and others' test at 1,600 feet. The Mullins Gas Co. is drilling on the Earl K. Johnson lease at 5,014 feet.

United Fuel Gas Co. in this district is down 1,580 feet in No. 4796 W. J. Glass; No. 4804 Odell & Glass at 4,820 feet, topping the Corniferous lime at 4,805 feet; No. 4806 J. W. Legg at 4,340 feet; No. 4808 J. H. Bumgardner at 1,876 feet; No. 4811 S. E. Gibson at 1,730 feet; No. 4794 B. B. Milam at 792 feet; No. 4816 Mary L. Miller at 850 feet; No. 4795 Nancy Carney is spudding; and No. 4795 Milam & Odell at 4,750 feet, the top of the Corniferous lime in this well at 4,735 feet.

### Deep Tests

In Ravenswood district, Jackson County, Joe Rubin reached a depth of 4,295 feet in the W. J. Brown test. The well has been shut down indefinitely. The final test after shooting the well in the Oriskany sand gauged 150,000 feet with a rock pressure of 1,670 pounds.

In Ripley district, Jackson County, Everett Starcher is drilling at 2,900 feet in the Story Boggess test.

In Grant district, Pleasants County, the Columbian Carbon Co. is underreaming the Gile Hammet test at 4,300 feet and is also swabbing oil.

### New Work

In Barbour County, the Hope Natural Gas Co. reached 1,500 feet in the No. 7840 Annette Riley in Elk district. In Boone County, the Rich Fork Oil & Gas Co. is cementing the casing in No. 8 Croft Land Co. in Scott district. In Cabell County, the De Jarnette Gas Co. is fishing the bailer in No. 3 J. H. De Jarnette in McComas district. In the same district, H. A. Waggoner is drilling at 1,422 feet on the Leonard Paugh farm. In Grant district, R. H. Adkins is building rig on J. E. Lucas farm; Thurmal Gas Co. is drilling at 560 feet in No. 2 C. E. Perry; R. H. Adkins, trustee, is drilling 1,840 feet on James Beckett farm.

In Calhoun County, L. B. Carroll is drilling at 975 feet in the test on the Mollie Cain in Sheridan district. In Sherman district, McCall Drilling Co. has made a location for No. 2 on the R. W. Bennett lease.

In Clay County, the Pittsburgh & West Virginia Gas Co. is drilling at 1,832 feet in No. 7658 J. D. Engle and at 2,161 feet in No. 7659 Amanda Jarvis.

In Gilmer County, Z. N. Connolly and George Richards have made a location on the W. W. Bartlett No. 1 lease in Glenville district. In the same district, C. W. Marsh and Paul Kidd located No. 1 State Board of Control lease, and McIntosh & Grim located No. 3 M. B. Morris lease. In Harrison County, the Eagle Gas Co. made a location for No. 1 on the Charlotte Shreves lease in Coal district. In Lincoln County, Harvard Gas Co. is down 550 feet in No. 6 Lincoln Mineral Co. in Washington district. In Putnam County, Smith & Ellis are drilling at 1,025 feet in J. H. Payne heirs in Scott district.

*(Continued on Page 212)*

# Texas and Louisiana Gulf

By NEIL WILLIAMS

# New Deep Sand Discovery Leading to Important Deals

HOUSTON, Tex., Oct. 24.—Midwest Royalty Corp. No. 1 Louis Lobit, a wildcat south of League City in the Perry and Austin Survey, about 2½ miles northwest of the Dickinson field, provided another deep-seated producing field in Galveston County. The well was completed late Friday night and is still cleaning out, flowing an estimated 7 bbls. of fluid per hour of which 90 per cent is 38.82-gravity oil and the balance wash water. There was no evidence of salt water in the flow. The well is flowing through a one-eighth inch choke, under an equalized tubing and casing pressure of 1,300 pounds.

Casing was cemented without making a drill stem test and the well was completed on the strength of core records and electrical data which is reported to have shown favorable possibilities in several sands. The hole is bottomed at 9,197 feet, and production was obtained by perforating the casing with 39 shots at 9,092-9,105 feet. Several sands are reported to have shown favorable possibilities up the hole from 8,700 to 8,940 feet. The Round Marginulina was topped at 7,414 feet, Flat Marginulina at 7,587 feet, Marginulina sand at 8,023 feet and the Frio formation at 8,149 feet.

### Important Deal Impending

Completion of the well was delayed a few days pending consummation of a trade with the Phillips Petroleum Co. The Midwest Royalty Corp. submitted its block of approximately 3,200 acres and the drilling well to the Phillips company, but late in the week no trade had been made. With the well now showing production, it is believed that the deal will go through. It would give the Phillips Petroleum Co. its first important production along the Texas Gulf Coast. Leasing and royalty buying has been brisk for the past several days and a number of trades have brought high prices in view of the fact that all information pertaining to core records and electrical survey data was withheld by the operating company. The Phillips Petroleum Co. is reported to have purchased several tracts north of the well for an unreported cash consideration and an oil payment, while 1½ miles northwest of the well, H. C. Cockburn is reported to have paid $100,000 cash and a 1/24 overriding royalty for 500 acres.

### South Anahuac Area

Additional development for the South Anahuac area, Chambers County, is anticipated following the opening of a distillate field by the completion of Salt Dome Oil Corp. No. 1 Ogden which had an initial production of 5 bbls. of distillate and 12 bbls. of salt water per day, flowing through a 9/64-inch choke with tubing pressure 1,000 pounds. Production is from the upper Frio section through perforated casing at 7,515-25 feet. The company has a block of several thousand acres, centering in the Evan Douthit Survey and extending into Galveston Bay.

In the Iowa Colony area, Brazoria County, Normandie Oil Co. No. 1 Ramsey, H.T.&B. Survey, was drilling ahead below 6,700 feet after showing salt water in the Frio section. The well is on the west edge of the prospect. In the Anchor area, Illinois Petroleum Co. No. 1 Masterson, George Robinson Survey, has been taken over by Humble Oil & Refining Co. and is scheduled to be spudded this week.

### New Montgomery County Test

Another wildcat for the Honea area, Montgomery County, is being started by Housh & Thompson on the E. B. Clay lease in the William S. Allen Survey, approximately 5½ miles northwest of the Conroe field. In the same area, and in the Archibald League, Mills Bennett Production Co. No. 1 Victor Griffin is drilling in shale below 8,177 feet. West of the Conroe field, Jack Frazier and others No. 1 Chase National Bank is drilling below 8,400 feet, and should reach contract depth of 8,500 feet early this week.

### Deeper Pay in Palacios Pool

In the Palacios field, Matagorda County, Sun Oil Co. No. 1 Bayshore Farm is flowing distillate, opening a deeper pay sand. The hole is bottomed in a side-tracked hole at 9,278 feet, and was completed after 7-inch casing was cemented at 9,204 feet. The well produced 150 bbls. of distillate per day through an 11/64-inch choke under a tubing pressure of 5,600 pounds and casing pressure 3,600 pounds.

Magnolia Petroleum Co. has completed No. 4-A West to extend the West field, Jackson County, 1,300 produced 150 bbls. of distillate per day through an one-eighth inch choke, the well flowed 37 bbls. of oil with tubing pressure 1,725 pounds and casing pressure 2,100 pounds. The hole is bottomed at 5,108 feet with 7-inch casing cemented at 5,093 feet.

### South Louisiana

On the Chalkley prospect, Cameron Parish, Coastal Louisiana, Humble Oil & Refining Co. was preparing to test No. 2 K. B. Hanzen which is expected to result in the discovery of another distillate field. This well was drilled to 11,693 feet and then plugged back, preparatory to testing a broken section of sand and shale which was indicated on an electrical survey at 8,487-8,571 feet. Fuel from this well will be used in drilling No. 1 Desire Miller, 2 miles to the north in Section 32-11s-6w.

A third producer for the deep sand in the Bayou Choctaw field, Iberville Parish, was completed by Louisiana Crusader Oil Co. on the Schwing lease. Casing was perforated at 8,376-96 feet, and the well flowed 780 bbls. daily through a quarter-inch choke. Location is in Section 29-8s-11e.

Locations for two tests were made in the Baton Rouge field, East Baton Rouge Parish. George Helis has derrick up for No. 1 Aztec Oil & Royalty Co. in Section 41-8s-1w, while William Helis has spudded No. 3 Duplantier in Section 65.

### New Pay in South Roanoke

In the South Roanoke field, Jefferson Davis Parish, Continental Oil Co. No. 1 Joe Sturdivant, Section 36-10s-4w, completed last week to open a new horizon, has shown an increase in production and is flowing 307 bbls. of 52.5-gravity distillate daily through a three-sixteenths inch choke.

On the Golden Meadows prospect, La Fourche Farish, Texas Co. No. 1 LaTerre, Section 1-20s-21e, showed evidence of distillate production on the first production test and has plugged back to test a higher sand. The casing was perforated at 9,975-10,005 feet, and the well tested 21 stands of distillate.

Another prospective pool opener is Shell Petroleum Corp. No. 1 Hazel Burdin located on the West Lake Verret prospect in St. Martin Parish. On a drill stem test at 8,017-32 feet, eight stands of 39-gravity oil and eight stands of salt water was recovered The hole was cored ahead and is now bottomed in 2 feet of oil sand at 8,461 feet, and an electrical coring survey was being made. This well is credited with having logged several showings and is being watched with considerable interest. Location is in Section 15-14s-12e.

On the Jefferson Island dome, Iberia Parish, Texas Co. was running 7⅝-inch casing in No. 1 State-Lake Peigneur after the well topped rock salt at 7,880 feet, and drilled the formation to 7,897 feet. Casing was being cemented for a production test of several sands logged at intervals from 7,573-7,745 feet. The discovery well, No. 1 Bayless Jones, was completed through perforated casing at 8,170-8,210 feet.

### Lafitte Extended

The Lafitte field, Jefferson Parish, was extended in two directions by the completion of Texas Co. No. 12 Lafitte and No. 10 Rigolet. No. 12 Lafitte, Section 20-17s-24e, flowed 985 bbls. daily through a three-eighths inch choke from perforated casing at 9,845-68 feet, while No. 10 Rigolet, Section 28-17s-24e, flowed pipe line oil from perforated casing at 10,002-37 feet.

In the Lake Barre field, Terrebonne Parish, Texas Co. is reperforating casing in No. 42 State after the well failed to flow through perforated casing at 10,460 to 10,530 feet. On a drill stem test last week the well showed evidence of opening distillate production from a new sand. Location is in Section 40-21s-19e.

Another distillate producer was added to the Lirette field, Terrebonne Parish, with the completion of Humble Oil & Refining Co. No. 1 Laterre, Inc. Casing was perforated at 8,450-60 feet, and the well flowed an estimated 7,000,000 feet of gas and some distillate through a quarter-inch choke, under a tubing pressure of 3,050 pounds.

Locations for two tests were made on the Potash dome, Plaquemines Parish, by Western Gulf Production Co. No. 1 Pascale and No. 1 Sam Treadway, in Section 6-18s-27e. Previous development on this shallow structure has been done by the Humble Oil & Refining Co.

## COMPLETIONS ON TEXAS GULF COAST

(24-hour production)

### Brazoria County

Hastings field: Stanolind Oil & Gas Co. No. 10 T. C. Edwards, perforated casing 6,054-77 feet, 544 bbls., quarter-inch choke; No. 8 Matsushita, perforated casing 6,042-60 feet, 581 bbls., quarter-inch choke.

### Chambers County

Anahuac field: Gulf Oil Corp. No. 3 Spyhrett, sand 7,119-29 feet, 799 bbls., quarter-inch choke. South Cotton Lake field: J. R. Turnbull No. 1-A Casey, 7,019 feet, abandoned.

### Fort Bend County

Thompson field: Humble Oil & Refining Co. No. 41-X Lockwood Sharp, 3,161 feet, 120 bbls., quarter-inch choke.

### Harris County

Fairbanks field: P. C. Bundy No. 1 Neri, sand 6,803-40 feet, 681 bbls., quarter-inch choke. Gem Oil Co. No. 7 B. W. Reid, sand 6,830-52 feet, 661 bbls., quarter-inch choke. Moore & Ahren No. 2 Whitehead & Rash, sand 6,810-54 feet, 684 bbls., quarter-inch choke. H. E. Williams No. 3 Stern, sand 6,821-38 feet, 395 bbls., quarter-inch choke. Tomball field: Humble Oil & Refining Co. No. 3-A Holderrieth, sand 5,553-57 feet, 458 bbls., quarter-inch choke; No. 2-A State, sand 5,547-57 feet, 425 bbls., quarter-inch choke.

### Jackson County

West Ranch field: Magnolia Petroleum Co. No. 4-A West, sand 5,093-5,108 feet, 37 bbls., eighth-inch choke.

### Jefferson County

Clam Lake field: Shell Petroleum Corp. No. 2 McFaddin, perforated casing 3,845-55 feet, 153 bbls. fluid, 45 per cent basic sediment and water.

*(Continued on Page 215)*

# North and East Texas

By
D. H. STORMONT

# Canyon Pool Is Extended; Failure of Wildcats in East

WICHITA FALLS, Tex., Oct. 24.—The new Canyon sand pool in southern Wichita County and the Hull-Silk pool of northern Archer County centered the majority of attention in North Texas in the past week.

Extending the production of the Canyon sand pool down into Archer County, Shappell Oil Co. No. 3-D Wilson, League 3, Block 5, Denton C.S.L. Survey, almost half a mile south of the discovery well, is bottomed at 2,613 feet after drilling oil sand from 2,610 feet to total depth. When the plug was drilled, the hole was cleaned out, then swabbed which brought the oil up 600 feet in the hole. The crew is rigging up spudder and will drill deeper into the sand.

About 4 miles north of the Hull-Silk pool in northern Archer County, Westmount Oil Co. No. 7 Dempsey, in Block 10, Denton C.S.L. Survey, is bottomed at 4,614 feet and preparing to test showing at 4,230-40 feet. In the southeast extension area of the Hull-Silk pool, a new producer was completed for 531 bbls. of oil per day from the 4,300-foot level. The well is Chapman & McFarlin No. 1 Wilson, Block 26, A.T.N.C.L. Survey.

In the extreme southeast corner of Archer County, Panhandle Refining Co. No. 2 Prideaux, in the A. Rohus Survey, filled with salt water after drilling plug and will be abandoned. Total depth was 3,266 feet, with water sand reported from 3,258 feet to total depth.

## EASTERN TEXAS

DALLAS, Tex., Oct. 24.—Wildcat developments, new locations and abandonments featured the week's activity in eastern Texas.

The Flag Lake pool of northwestern Henderson County suffered another dry eastern outpost when High Point Oil Co. abandoned No. 1 Peavy at a total depth of 3,425 feet. It was 5 miles east of the field and cored sand from 3,362-67 feet recovering only salt water. This is the second wildcat abandoned in the area by the High Point Oil Co. in its attempts to extend production eastward.

Another important test in Leon County continued to hold attention as production attempts continue. It is the T. J. Tucker and others No. 1 Sam Vane, nearly 5 miles southeast of Keechi and over a mile north of gas production at Buffalo. The crew is awaiting setting of cement after plugging back to 5,545 feet when first test in sand at 5,576 82 feet developed water. A section at 5,503-45 feet will be tested through perforations.

Freestone County and Falls County each received a new wildcat location. J. L. Collins staked No. 1 F. E. Hill in Freestone County in the Tobas Dubronner, Jr. Survey about 1½ miles west of the river and 15 miles east of Fairfield. It is a 5,000-foot test. In Falls County Kincaid Production Co. located No. 1 Davis in the Pedro Zarza Survey, about 13 miles southeast of Waco. The test is drilling below 500 feet.

Two dry holes were reported in eastern Texas, one each in Freestone and Houston counties. G. Shryock No. 1 M. S. Clark, M. DeCanton Survey, Freestone County, 8 miles northwest of Teague, was abandoned at a total depth of 4,155 feet. In Houston County, John G. Mayo abandoned No. 1 A. Warroch, J. Sheridan Survey, 1½ miles east of Procilla, at a total depth of 5,890 feet.

## EAST TEXAS FIELD COMPLETIONS

(One-hour production)

### Gregg County—Longview Area

Atlantic Refining Co. No. 19 T. B. Harris, 3,457-90 feet, 82 bbls. Gulf Oil Corp. No. 31 S. C. Fishburn, 3,472-85 feet, 60 bbls. Shell Petroleum Corp. No. 36 G. W. Richey, 3,558-3,669 feet, 80 bbls. Stanolind Oil & Gas Co. No. 60-B J. C. and R. S. McKinley, 3,617-70 feet, 41 bbls.; No. 65-B J. C. and R. S. McKinley, 3,638-91 feet, 37 bbls.

### Gregg County—Kilgore Area

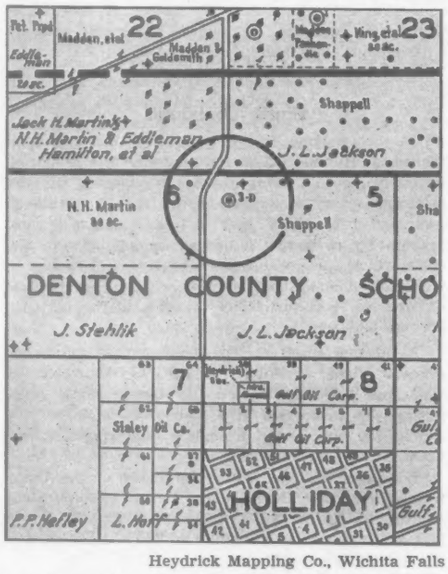
Gulf Oil Corp. No. 37 H. C. Alexander, 3,540-50 feet, 70 bbls. Shell Petroleum Corp. No. 24 P. M. Bates, 3,530-3,619 feet, 50 bbls. Angus Spear No. 2 H. Ector, 3,540-52 feet, 45 bbls. Tide Water Associated No. 17 W. D. Lacey, 3,540-60 feet, 50 bbls. A. T. Travis No. 4 (13) E. Still, 3,522-60 feet, 17 bbls.

### Rusk County—Kilgore Area

Everetts Drilling Co. No. 3 Beasley, 3,835-36 feet, 38 bbls. Sinclair Prairie Oil Co. No. 14-B M. Kennedy, 3,662-3,745 feet, 35 bbls.

### Rusk County—Joiner Area

Humble Oil & Refining Co. No. 26 J. E. Wheelis, 3,690-3,723 feet, 45 bbls.; No. 37 J. H. Wooley, 3,661-98 feet, 70 bbls. Hunt Oil Co. No. 14 Wooley, 3,705-36 feet, 17 bbls.




Heydrick Mapping Co., Wichita Falls

*Portion of Canyon sand pool of southern Wichita County and extension into Archer County by Shappel No. 3 Jackson*

Ohio Oil Co. No. 49 S. H. Moores, 3,636-3,706 feet, 34 bbls. Stanolind Oil & Gas Co. No. 16 R. B., T. O. and J. F. Mason, 3,589-3,636 feet, 34 bbls.

### Upshur County—Longview Area

General American Oil No. 24-A A. J. Saunders, 3,618-19 feet, 80 bbls. Humble Oil & Refining Co. No. 45 J. K. Edwards, 3,600-90 feet, 40 bbls. Shell Petroleum Corp. No. 27 C. C. Landers, 3,654-3,748 feet, 46 bbls.; No. 10 William Landers, 3,648-3,723 feet, 60 bbls.

## EAST CENTRAL TEXAS COMPLETIONS

(24-hour production)

### McLennan County

J. C. Kilgore No. 1 Tom Motis, abandoned location.

### Freestone County

G. Shryock No. 1 M. S. Clark, dry and abandoned at 4,145 feet.

### Franklin County

Humble Oil & Refining Co. No. 58 King, 4,311-16 feet, 149 bbls. Magnolia Petroleum Co. No. 9 Maxton, 4,201-31 feet, 114 bbls.

### Henderson County

High Point Oil Co. No. 1 Peavy, dry and abandoned at 3,425 feet.

### Houston County

John G. Mayo No. 1 Warroch, dry and abandoned at 5,890 feet.

### Leon County

Leon Star Gas Co. No. 1 S. Pate, 5,780-83 feet, 115,000,000 feet of gas per day.

### Titus County

Humble Oil & Refining Co. No. 62 King, 4,175-80 feet, 215 bbls.

## NORTH TEXAS COMPLETIONS

### Archer County

Duke Hampton No. 1 W. L. Lovern, 1,995 feet, dry. White Duncan & Dye No. 4 W. P. Ferguson, 3,735-55 feet, 576 bbls.

### Clay County

Beasley and others No. 3 C. J. Shumake, 1,128-1,430 feet, 15 bbls. Metzner & Burns No. 11 J. J. Taylor and others, 1,085-1,100 feet, 265 bbls. Norwood & Griffin No. 1 Mary A. Stephenson, 400 feet, dry.

### Cooke County

Texas Co. No. 13 Tony Truebenbach, 804-15 feet, 19 bbls. Trumter Petroleum Corp. No. 1 Mrs. C. E. Stacey B, 743-56 feet, 33 bbls.

### Jack County

Benoil Co. No. 1 J. Matlock B, 3,030-50 feet, 440 bbls. Bissey & Powell No. 1 L. King, 1,675 feet, dry.

### Wichita County

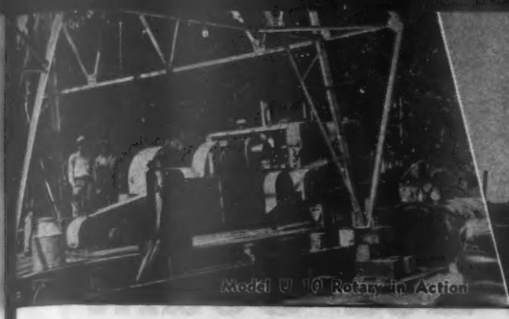
E. D. Egger No. 3 D. R. Preston, 3,835-3,950 feet, 800 bbls. Geier Brothers & Jackson Nos. 1, 3 and 4 D. R. Preston, abandoned location. Haberle & Thornton No. 1-D First National Co., 493 feet, dry. W. B. Hamilton No. 3 N. H. Martin A, 552-57 feet, 18 bbls. W. H. Hammon No. 17 McCarty M, 3,630-3,855 feet, 720 bbls. Hammon, Hanlon & Buchanan No. 20 Fassett & Tuttle, 3,784-3,959 feet, 553 bbls. Hanlon & Buchanan No. 2 Fassett & Tuttle B, 3,900-4,004 feet, 400 bbls. Jennings Drilling Co. No. 3 Mrs. Grace Jennings, 1,843-67 feet, 15 bbls. King Oil Co. No. 6 J. L. and T. J. Waggoner, 3,742-3,808 feet, 672 bbls. A. P. Kouri No. 2 N. H. Martin B, abandoned location. Tom B. Medders No. 1 State Lands, abandoned location. Ryan Consolidated Petroleum Co. No. 130 G. L. Nance, 3,779-3,806 feet, 1,080 bbls. Venmex Oil Co. of Texas No. 2-A State Lands, 3,664-3,732 feet, 2,004 bbls.

### Wilbarger County

Consolidated Oil Co. No. 1 G. B. Ancell, Jr., 4,070-4,127 feet, 68 bbls. (wildcat). Tom B. Medders No. 1 W. T. Waggoner, abandoned location; No. 2 W. T. Waggoner, abandoned location.

### Young County

Cable Oil Co. No. 43 L. A. Snider, 605-13 feet, 10 bbls. Chambers & Humphrey No. 10 S. M. J. Benson, 873-902 feet, 35 bbls. Cosden Oil Co. No. 2 E. S. Graham, 3,491-3,503 feet, 75 bbls. J. . Doss No. 2 R. D. Webb, 800 feet, dry. Sparks & Hansen No. 2 G. B. Hamilton, 799-864 feet, 325 bbls. West & Honea No. 6 B. N. Honea, 826-45 feet, 20 bbls. E. D. Willis No. 4 G. Stewart B, 868 feet, dry.

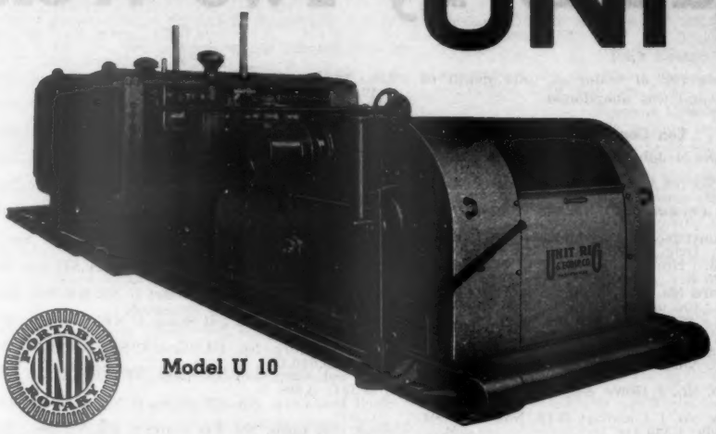


Model U 10 Rotary in Action

Model U 10 Bound for Illinois

Another Model U 10 in Action

# IN ILLINOIS UNIT RIG LEADS THE FIELD!



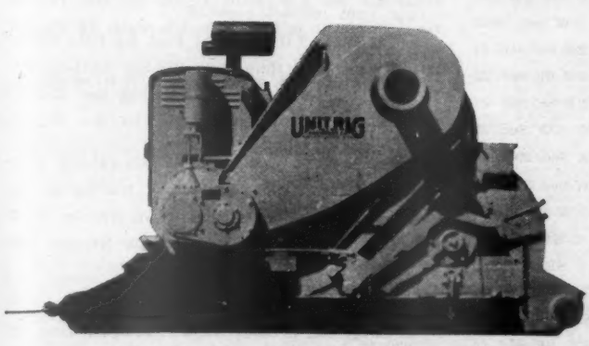
Model U 10

In every field, where UNIT RIG equipment is operating, new records are being established. Regardless of the drilling depth—from 1,000 ft. to 5,000 ft.—there is a UNIT RIG of proper size suitable for use with rotary or cable tools. Models are available equipped with one engine and so constructed that they are convertible for use with two or more gasoline or diesel engines for deeper drilling. Units are available with single drum or double drum.

In the designing of UNIT RIG the dominant controlling factors have been:

(1) Light weight with strength
(2) Portability
(3) Ease and simplicity of operation with low maintenance and rigging up costs.

Within our range of rotary, cable, and servicing units, which includes several models of each, there is a UNIT RIG with which you can reduce your costs.



Model U 16 — Combination Rotary and Cable Tool Rig

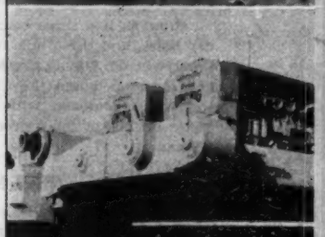
Our service men, together with our facilities, make it possible to give unexcelled service on our equipment—anywhere—anytime!

On most models we can make immediate delivery. Our engineering department will be pleased to answer your questions regarding UNIT RIG and its adaptability to your drilling problems.

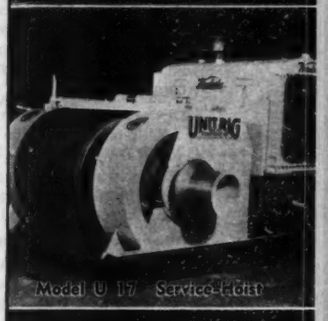
## UNIT RIG & EQUIPMENT CO.

1603 S. Phoenix St. Phone 5-3137
TULSA, OKLAHOMA

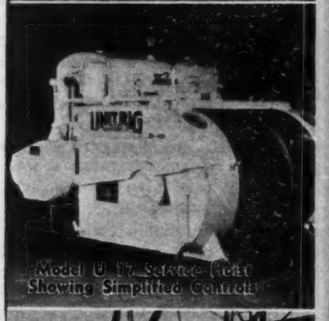
Model U 10 Hauled Intact on Truck



Model U 10 on Fast Freight Train

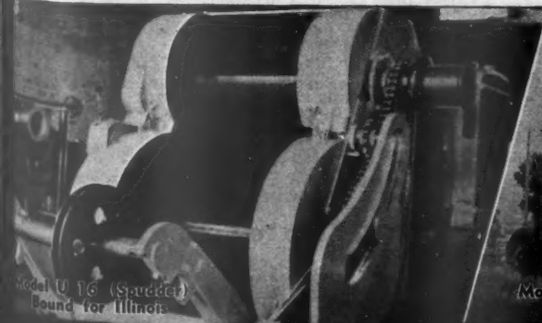


Model U 17 Service Rotary



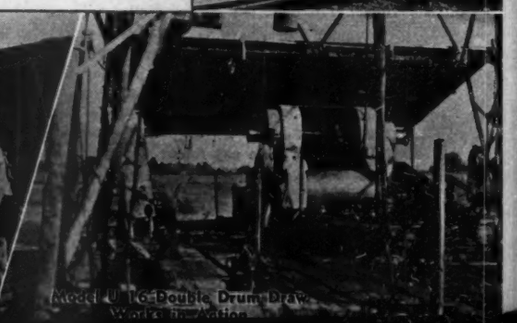
Model U 17 Service Rotary Showing Simplified Controls

Another View U 16 Double Drum Draw Works In Action



Model U 16 (Spudder) Bound for Illinois

Model U 16 (Draw Works) Bound for Illinois



Model U 16 Double Drum Draw Works In Action

# Rocky Mountain Area

By
T. R. INGRAM

# Vacuum Pool in Lea County Extended East by Two Wells

DENVER, Colo., Oct. 24.—Wyoming had two completions and two new operations in the past week. The Continental Oil Co. No. 13 Tom Bell Cattle was completed in the Sundance in Lance Creek for 195 bbls., swabbing and flowing. The Sinclair-Wyoming Oil Co. completed a 100-bbl. well in the Sundance in the Lost Soldier field.

Montana had three completions, of which two were dry holes, and three new operations. The Montana Gas Corp. test on Wayne Creek in Blaine County, was dry and abandoned and the Chambers-Jones No. 1 Erickson was abandoned without going to the Devonian. Texas Co. had a small producer in Cut Bank in its No. 1 Bonnet.

## NEW MEXICO

Two extension wells in the continually expanding Vacuum area in Lea County, southeastern New Mexico, were completed the past week.

Cities Service Oil Co. No. 1-K State, C SW NE Section 27-17-35, an outpost on the east side of Vacuum, had initial flow of 526 bbls. of oil in 21 hours through three-fourths inch choke on 2-inch tubing set at 4,608 feet. It topped lime pay at 4,430 feet and was completed naturally at 4,625 feet, total depth. Gas tested 312,000 feet.

Three-fourths of a mile east and slightly south of No. 1-K State, the Phillips Petroleum Co. No. 11 Santa Fe, C NE SW Section 26-17-35, was completed at 4,611 feet, total depth, flowing 140 bbls. of oil through tubing in four hours. Top of pay was 4,210 feet. It proves a hitherto doubtful area.

Other completions of the week in Lea County were:

Humble Oil & Refining Co. No. 1-J State, C SW SW Section 19-17s-35e, was completed for 192 bbls. per day from pay topped at 4,437 feet, total depth 4,725 feet.

Magnolia Petroleum Co. No. 16 State-Bridges, C NW NE Section 25-17s-34e, total depth 4,750 feet, top of pay 4,445 feet, flowed 70 bbls. on 15-hour test through perforations at 4,545 feet and was completed naturally.

Standard Oil Co. of Texas No. 1 State, C SW NW Section 32-17s-35e, at total depth of 4,705 feet, plugged back to 4,649 feet and pumped 55 bbls. per day, initially.

Phillips Petroleum Co. No. 3 Santa Fe, C SW NW Section 5-18s-35e, total depth 4,650 feet, topped pay at 4,200 feet and flowed 79 bbls. in four hours through open 2-inch tubing set at 4,647 feet. Gas volume was 300,000 feet daily.

Emperor Oil Co. No. 1 Humble-State, C SE SW Section 36-20s-35e, was completed at total depth of 4,109 feet but was abandoned when the hole filled with water.

Twin Oil Co. No. 1 Joyce-Pruitt, C SE SE Section 31-21s-37e, total depth 3,771 feet, topped pay at 3,620 feet, and pumped 30 bbls. per day.

Parker Drilling Co. No. 1-A State, C SW SW Section 21-22s-37e, total depth 3,665 feet, had pay at 3,572 feet and pumped 49 bbls. in 18 hours. Gas gauged 630,000 feet per day.

Skelly Oil Co. No. 1 Ella Simms, (O.W.D.D.), C NW SE Section 3-23s-37, was bottomed at 3,640 feet and flowed 110 bbls. per day, initially.

Weiner and others No. 2 Smith, NE SE NE Section 4-25s-37e, bottomed in sand at 3,496 feet, had pay at 3,420 feet and flowed 40 bbls. per day through three-fourths inch choke on 2-inch tubing set at 3,456 feet.

In Eddy County, Fullerton Oil Co. No. 1-A Little, C NE NE Section 28-18s-31e, was completed for 35 bbls. per day from pay found at 3,575 feet; total depth 3,615 feet. Gas gauged 375,000 feet daily.

Yates & Dooley No. 1 Creek, C SW NE Section 35-18s-30e, had a hole full of water at total depth of 3,407 feet in sand and was abandoned.

### Lea County

Amerada Pet. Co. No. 1 Johnson, C NW SW Sec. 27-24-37. Drlg. 456 ft.
Amerada Pet. Co. No. 5-VA State, C NW NW Sec. 22-17-35. Drlg. 1,130 ft.
Aloco Oil Co. No. 1 Carson, C SW SE Sec. 28-21-37. Fsg. 815 ft.
Anderson & Prichard No. 4 Carlson-Harrison, NE SE NE Sec. 27-25-37. Drlg. 2,435 ft.
Anderson & Prichard No. 5 Langlie, C NW NW Sec. 9-25-37. Drlg. 2,825 ft.
Anderson & Prichard No. 3 Wells, C NE NW Sec. 5-25-37. T.D. 3,567 ft.; top pay 3,450 ft.; S.I.; no gauges.
Cities Service No. 1-L State, C SE SW Sec. 15-17-35. Spud.
Continental Oil Co. No. 3 Britt B-15, C W½ NW SW Sec. 15-20-37. Drlg. 380 ft.
Continental Oil Co. No. 1 Hawk B-6, NW NW SE Sec. 6-21-37. Loc.
Continental Oil Co. No. 1 Howe A-5, C SW NE Sec. 5-21-38. R.U.R.
Continental Oil Co. No. 1 Lockhart B-13, NW NW NW Sec. 13-21-36. Drlg. 1,345 ft.
Continental Oil Co. No. 2 Lockhart B-1, C SE NW Sec. 1-22-36. Rng. csg. 245 ft.
Continental Oil Co. No. 4 Lockhart B-31, S½ SE SE Sec. 31-21-36. R.U.R.
Continental Oil Co. No. 4 Meyer B-18, C E½ SE NW Sec. 18-21-36. W.O.C. 305 ft.
Continental Oil Co. No. 7 Reed B-23, NE NW SE Sec. 23-20-36. Drlg. 3,760 ft.; no shows.
Continental Oil Co. No. 1 State 1-7, NE NW NE Sec. 7-17-34. T.D. 4,895 ft.; C.O. at 4,660 ft.
Continental Oil Co. No. 2 State H-35, C NE NE Sec. 35-17-34. W.O.C. 4,145 ft.
Continental Oil Co. No. 3 State J-2, C SE NE Sec. 2-22-36. Drk.
Culbertson & Irwin No. 2 Dabbs, NE NW NW Sec. 35-25-37. Drlg. 2,605 ft.
Devonian Oil Co. No. 2 Christmas, SE SW SE Sec. 28-22-37. Loc.
Devonian Oil Co. No. 1 State-Ritts, C NW NW Sec. 21-17-34. Loc.
Walter Donnelly No. 1 Davis, C SE NW Sec. 33-23-37. T.D. 3,600 ft.; F. 25 B.O.P.D. for 2 days and died; prep. to swb.
Great Western Prod. No. 1 Leonard, C SE NE Sec. 32-23-37. O.W.D.D.; O.T.D. 3,615 ft.; C.O. to bttm.; S.I. for storage.
Great Western Prod. No. 2-B Leonard, C NW NW Sec. 32-23-37. Loc.
Gulf Oil Corp. No. 1 Alley, C NE SE Sec. 10-23-37. T.D. 3,715 ft.; P.B. 3,686 ft.; C.O.
Gulf Oil Corp. No. 3-D Arnott-Ramsey, C NE NE Sec. 33-21-36. T.D. 3,771 ft.; rng. csg.
Gulf Oil Corp. No. 1 Holt, C SW SE Sec. 16-24-37. Drlg. 2,980 ft.
Gulf Oil Corp. No. 6 McCormack, C NW SE Sec. 32-21-37. T.D. 3,780 ft.; acdz. and F. 129 B.O. in 14 hrs.
Helmerich & Payne and Continental Oil Co. No. 1-G-36 State, C NW SW Sec. 36-17-35. T.D. 4,950 ft.; C.O. to 4,925 ft.; 250 ft. O.I.H. every 4 hrs.
Humble O. & R. Co. No. 3 Greenwood, C SW SW Sec. 9-22-37. Drlg. 3,525 ft.
Humble O. & R. Co. No. 4-H State, C NE NW Sec. 34-22-37. Drk.
Italo Pet. Corp. No. 1 Carlson A-22, SW SE SE Sec. 22-25-37. Drlg. 2,888 ft.
Italo Pet. Corp. No. 2 Carlson A-22, NE SW SE Sec. 22-25-37. Drlg. 2,880 ft.; S.G. 2,805 ft.
Italo Pet. Corp. No. 2 Carlson B-27, NE NE SE Sec. 27-25-37. Drk.
Magnolia Pet. Co. No. 2 Hardy, NW NW NW Sec. 29-21-37. Drlg. 3,628 ft.
Magnolia Pet. Co. No. 3 Hardy, C NE NW Sec. 29-21-37. Drlg. 3,285 ft.
Magnolia Pet. Co. No. 1-M State, C NE NW Sec. 34-17-35. Drlg. 4,086 ft.
Magnolia Pet. Co. No. 1-N State, C SW NW Sec. 19-17-35. Drlg. 3,173 ft.
Magnolia Pet. Co. No. 17 State-Bridges, C NE NE Sec. 25-17-34. Drlg. 4,745 ft.; S.O.
Magnolia Pet. Co. No. 18 State-Bridges, C SE NW Sec. 24-17-34. C.&P.
Maljamar O. & G. Co. No. 10 Baish, C SW NW Sec. 22-17-32. T.D. 4,110 ft.; F. 15 B.O.P.D
Maljamar O. & G. Co. No. 1-B Baish, C NE NW Sec. 22-17-32. W.O.C. 3,600 ft.
Maljamar O. & G. Co. No. 1-B State, C SW SE Sec. 16-17-32. T.D. 4,121 ft.; ctmg.
Jas. A. Mascho No. 2 Cloyd, C SW SW Sec. 20-22-33. T.D. 5,038 ft.; S.D.O.
J. M. Murray, Trustee, No. 1 Fanning, SE SW NW Sec. 33-23-37. Drlg. 2,325 ft.
Ohio Oil Co. No. 1 State-Shugart, C NE SE Sec. 34-17-34. Drlg. 1,230 ft.
Ohio Oil Co. No. 2 Turner, SW NW SE Sec. 29-21-37. O.W.D.D.; O.T.D. 3,800 ft.; C.O. to 3,749 ft. and F. 60 B.O.P.D.; S.I.
Ohio Oil Co. No. 2 State-Warn, C NE NW Sec. 6-18-35. Drlg. 3,302 ft.
Ohio Oil Co. No. 1 Wills, C NE NW Sec. 35-26-37. T.D. 3,300 ft.; cored 3,050-3,207 ft.; S.S.O.
Olean Pet. Co. No. 1 Boyd, C NW SW Sec. 23-22-37. T.D. 3,694 ft.; swb. 20 B.O.P.D.
Olean Pet Co. No. 1 Brunson, SW SE SE Sec. 4-22-37. Drlg. 3,010 ft.
Olean Pet. Co. No. 1 Farrell, C NE SE Sec. 22-22-37. T.D 3,684 ft.; 20 B.O.P.D.; to shoot.
Lem Peters No. 3 L. J. May, C NE SE Sec. 27-22-37. W.O.C. 149 ft.
Lem Peters No. 2 T. O. May, NW NE NE Sec. 34-22-37. Drlg. 2,000 ft.
Phillips Pet. Co. No. 2 Hale, C NE SW Sec. 35-17-34. Drk.
Phillips Pet. Co. No. 1 Mabel, C SW NW Sec. 35-17-34. Drlg. 2,500 ft.
Phillips Pet. Co. No. 10 Santa Fe, C NE NW Sec. 24-17-34. Drlg. 4,270 ft.
Schermerhorn Oil Co. No. 3 Woolworth, NW NW SE Sec. 28-24-37. Drlg. 720 ft.
Shasta Oil Co. No. 3 Woolworth, NE SE NW Sec. 28-24-37. Loc.
Shell Pet. Corp. No. 3 Grizzel, C SE SE Sec. 8-22-37. Drlg. 1,555 ft.
Shell Pet. Corp. No. 4-A State, C NE NE Sec. 31-17-35. W.O.C. 4,280 ft.
Shell Pet. Corp. No. 1-H State, C NW SW Sec. 29-17-35. Drlg. 4,358 ft.
Shell Pet. Corp. No. 1-I State, C SW NW Sec. 29-17-35. Drlg. 4,610 ft.
Shell Pet. Corp. No. 1-N State, NE NE SE Sec. 24-21-35. W.O.C. 3,806 ft.
Shell Pet. Corp. No. 1-N State, C NW NE Sec. 28-17-35. C.&P.
Shell Pet. Corp. No. 1-O State, C SE NE Sec. 34-17-34. Drlg. 1,165 ft.
Shell Pet. Corp. No. 1-S State, C NE SE Sec. 21-17-35. T.D. 4,675 ft.; shot and swb. 89 B.F.P.D.
Shell Pet. Corp. No. 1-U State, C NE NW Sec. 3-18-35. T.D. 4,900 ft.; S.S.O.&G.
Skelly Oil Co. No. 1 Baker, C SW SW Sec. 10-22-37. Drlg. 3,545 ft.; 6,000,000 ft. gas from 3,440 ft.
Skelly Oil Co. No. 6 Baker, C SW NE Sec. 27-22-37. T.D. 3,660 ft.; C.O. at 3,655 ft.; no gauges; S.I.
Skelly Oil Co. No. 1-B King, C NE SW Sec. 33-22-37. T.D. 3,710 ft.; F. 60 B.O.P.D.; shot and F. 125 B.O. P.D.
Stanolind O. & G. Co. No. 4-C Hill, C SE NW Sec. 5-21-37. Drlg. 2,880 ft.
Skelly Oil Co. No. 4 Simms, C NW NW Sec. 3-23-37. Spud.
Standard Oil Co. of Texas No. 1 State, Lease 5, C NW NW Sec. 27-17-35. Drlg. 3,708 ft.
Texas Co. No. 4 Black, C SE NW Sec. 21-24-37. W.O.C. 1,372 ft.
Texas Co. No. 5 Fristoe, NW SE SE Sec. 3-25-37. T.D. 3,480 ft.; tstg.
Texas Co. No. 2 Fanning, C NW NE Sec. 4-26-37. T.D. 3,605 ft.; C.O.
Texas Co. No. 1 Lodewick, C SW SE Sec. 34-18-33. T.D. 3,885 ft.; S.D.O.
Texas Co. No. 1-T State, C SE NE Sec. 25-17-34. W.O.C. 4,120 ft.
Texas Co. No. 2-L State, C NE NE Sec. 1-18-34. Drlg. 50 ft.
Texas Co. No. 1-N State, C SW SW Sec. 30-17-35. T.D. 4,850 ft.; P.B. 4,685 ft.; swb. 35 B.O.P.D.
Texas Co. No. 2-N State, C NW SW Sec. 30-17-35. W.O.C. 4,110 ft.
Texas Co. No. 9-O State, C SE SW Sec. 36-17-34. Drlg. 3,600 ft.
Texas Co. No. 1-U State, C NE NE Sec. 2-18-34. Drlg. 2,155 ft.
Texas Co. No. 1-V State, C NE NW Sec. 34-17-34. W.O.C. 1,600 ft.
Texas Co. No. 1-W State, C SW SE Sec. 13-17-34. Drlg. 1,105 ft.
Texas Pacific C. & O. Co. No. 6-A State, SW SE NW Sec. 21-23-26. T.D. 3,686 ft.; F. 5 B.F.P.D.; 250,000 ft. of gas.
Twin Oil Co. No. 1 Hare, C SE SW Sec. 33-21-37. T.D. 3,554 ft.; blew out; gauged 25,000,000 ft. of gas.
Twin Oil Co. No. 2 Hare, C NW SW Sec. 33-21-37. Drlg. 2,110 ft.
Twin Oil Co. No. 1-B State, C NW NE Sec. 17-22-37. Drlg. 1.800 ft.
Sam Weiner No. 3 Smith, NE NE SE Sec. 4-25-37. Drk.
Sam Weiner No. 1 Woolworth, SE NE SW Sec. 33-24-37. Drlg. 2,725 ft.
Westmount Oil Co. No. 1 Amerada, C NW NE Sec. 12-17-36. Drlg. 2,440 ft.
Westmount Oil Co. No. 1 State, C SE NW Sec. 30-17-35. Drlg. 4,615 ft.
Francis C. Wilson No. 1 State, C SW NE Sec. 7-21-35. T.D. 3,813 ft.; R.U. pump.

### Eddy County

Adkinson Oil Co. No. 1 Brainard, SE SW SE Sec. 5-18-27. Drlg. 340 ft.
F. E. Baker No. 1 Eddy, NE Sec. 12-22-27. Drlg. sh. 2,630 ft.
George E. Bobb No. 1 Cannon, NE SW SE Sec. 4-19-30. C.&P.
Carper Drlg. Co. No. 1 Day, NE NE NE Sec. 3-19-21. T.D. 2,748 ft.; P.B. 2,697 ft.; test wtr.; S.D.O.
Carper Drlg. Co. No. 3 Robinson, SW SW SE Sec. 25-16-31. Drlg. 1,667 ft.
B. Cockburn No. 1 State, C SW NE Sec. 16-18-31. T.D. 3,128 ft.; W.O.C.
Danciger O. & R. Co. No. 1-B Turner, CEL NE SE Sec. 17-17-31. T.D. 3,050 ft.; 2,000 ft. O.I.H.
D. & B. Oil Co. No. 3-A Berry, NW SW NW Sec. 21-17-30. Drlg. 3.333 ft.; swb. 60 B.O.P.D.
Dominion O. & G. Co. No. 2 Johnson, C SE NE Sec. 35-16-31. T.D. 4,033 ft.; shot and C.O.; swb. 20 B.O. P.D.
Dominion O. & G. Co. No. 3 Johnson, C NE SW Sec. 35-16-31. Drlg. 3,530 ft.
English & Harmon No. 1 Dougherty, NE NE SW Sec. 3-17-27. T.D. 2,319 ft.; gauged 1,000,000 ft. gas; S.I.

Etz Bros. No. 5 State, SE NE SE Sec. 16-17-30. Drlg. 1,925 ft.
Franklin Pet. Corp. No. 1 McIntyre, NW NE SE Sec. 20-17-38. Drlg. 3,210 ft.
Fullerton Oil Co. No. 1-A Johnson, C SE NW Sec. 35-16-31. T.D. 3,871 ft.; F. 36 B.O. in 7 hrs.; tstg.
Fullerton Oil Co. No. 2-A Johnson, C NW SE Sec. 35-16-31. T.D. 3,907 ft.; shot and F. 90 B.O. in 20 hrs.
Fullerton Oil Co. No. 3-A Johnson, C NW SW Sec. 35-16-31. M.I.M.
C. F. Ingram No. 1 Page, NE NE SW Sec. 15-21-28. T.D. 2,810 ft.; no shows; S.D.O.
New Mexico Eastern Gas Co. No. 2 Stephens, SE SE NE Sec. 20-17-38. T.D. 1,490 ft.; 350,000 ft. gas; S.I. and W.O.
Paton Bros. No. 1 Erwin, C SW SW Sec. 9-18-31. R.U. mch.
Premier Pet. Co. No. 1 Maddren-Beeson, NE SW SE Sec. 28-17-30. Drlg. 3,382 ft.
Premier Pet. Corp. No. 2-B Beeson, SW NW SW Sec. 27-17-30. Drlg. 1,815 ft.
Worth Drlg. Co. No. 1 Taylor, C SW SW Sec. 12-18-31. Drlg. 1,610 ft.
Martin & Lysette No. 1 Pardue & Guitar, SE SW NW Sec. 29-24-36. Drlg. 1,215 ft.
Martin Yates, Jr., No. 1 Bowers, SW SE SE Sec. 31-19-27. S.D. repairs, 1,127 ft.
Yates et al No. 1 Yates, C SE SW Sec. 6-18-30. Drlg. 250 ft.

**Chaves County**

E. J. Fisher No. 1 Foster, C NW NW Sec. 7-15-26. Drlg. 1,290 ft.
Nay Hightower No. 1 Billingslea, C SW NE Sec. 28-11-30. Drlg. 710 ft.
Interstate Minerals, Inc., No. 1 Dunigan, NW cor. Sec. 15-15-30. Drlg. 3,450 ft.
J. & L. Drlg. Co. No. 2 Hurd, SW Sec. 11-11-26. T.D. 1,735 ft.; U.R.

**De Baca County**

N. F. Woods No. 1 Jones, C NE SW Sec. 17-4n-20. T.D. 190 ft.; S.D.O.
James D. Ward No. 1 Summers, SE NE SW Sec. 15-4n-24e. T.D. 680 ft.

**Roosevelt County**

Shell Pet. Corp. No. 1 Harwood, C S½ SE SE Sec. 27-7s-35e. T.D. 2,530 ft.; W.O.C.

## NORTHWEST NEW MEXICO

**Bernalillo County**

Norins Realty Co., Inc., No. 2 Pajarito, Sec. 22-9n-1e. Drlg. below 500 ft.
Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW Sec. 10-11n-4e. Drlg. 4,300 ft.

**McKinley County**

Pet. Products Corp. No. 5 Santa Fe, SW NE NW Sec. 1-17n-9w. Drlg. below 500 ft.; (first report).
S. Dysart No. 3-A Govt., NE NW NE Sec. 14-14n-10w. Landed 12½-in. at 1,320 ft.; will cmt.

**Rio Arriba County**

Oil City Pet. Co. No. 1 Azotea, SW SW NE Sec. 11-31n-2e. Drlg. 333 ft. and U.R. 6¼-in.; through Greenhorn; S.O.&G.

**San Juan County**

Continental Oil Co. No. 82 Rattlesnake, NE SW NW Sec. 1-29n-19w. Drlg. 750 ft.
Jack Amenda No. 1, NE NE Sec. 14-29n-13w. Drlg. 500 ft.
Al Greer No. 2 fee, SW SE SW Sec. 10-30-11w. S.D. 660 ft. for 10-in.
Anna Oil Corp. No. 6 Govt., SW NE NE Sec. 33-30n-11w. S.D. 1,885 ft.; W.O. csg.; S.O. in Farmington sd. but will D.D. to Picture Cliff.
Goodrun & Vincent No. 2 Hare, SE SE Sec. 23-29n-11w. Drlg. 1,680 ft.
Ted Whetstine No. 1 McGee, NW NW Sec. 20-30n-11w. Drlg. below 150 ft.
Bullock & Noland No. 1 Bunce, SW SE Sec. 24-29n-11w. Drlg. 1,023 ft.
San Juan O. & G. Co. No. 1 Cassidy, C SE SE Sec. 19-29n-11w. Drlg. 510 ft.

**San Miguel County**

Southwest Drlg., Inc., No. 1 Conchas, NW NE Sec. 34-17n-21e. T.D. 1,450 ft.; prep. run 13⅜-in. for W.S.O.

**Socorro County**

Central New Mexico Oil Co. No. 1, Beden gr., SE NW Sec. 16-3n-1e. S.D. 2,965 ft. after rng. 12½-in.

**Torrance County**

Drice Co. No. 1 Garland, NE SE NE Sec. 32-7n-7e. S. D.O.; H.F.W. at 1,405-13 ft.
Estancia Valley Carbon-Dioxide Dev. Co. No. 1 Crawford, SE NE NE Sec. 32-7n-7e. Drlg. 1,080 ft.
Chief O. & G. Co. No. 1 Lee, NW NW SW Sec. 12-6n-7e. T.D. 2,215 ft.; C.O. 300 ft.

**Valencia County**

Old Spanish Grants, Inc., No. 1 San Clemente, C SE SW Sec. 23-7n-1e. Drk.; W.O. rotary.
C. A. Grober et al No. 1 Fuqua, NE NE Sec. 19-5n-3e. T.D. 840 (C.D.) ft.; W.O. title adj.

## COLORADO

**Adams County**

J. B. Furstenberg et al No. 1 Hills, SE SE SE Sec. 27-3s-64w. Drlg. below 4,345 ft.

**Archuleta County**

Boone Dev. Co. No. 1 Newton, SE NW SE Sec. 18-33n-1e. T.D. 303 ft.; W.O. 10-in.
Pagosa Oil & Dev. Co. No. 1 Macht, C Sec. 32-36-1w. T.D. 1,840 ft.; rng. 6¼-in. with bttm. hole pkr. to top Dakota.

**Elbert County**

Plymouth Oil Co. No. 1 Brosky-Union Pacific, C SW SW Sec. 19-10s-60w. Cg. and drlg. below 6,654 ft.; base Timpas 6,285 ft.

**Fremont County**

Stanley Thomas No. 1 Rickwalt, SE SE Sec. 2-19s-70w. Drlg. 2,255 ft.
R. E. Hawks No. 1 Orndoff, NE SW NE Sec. 3-19s-70w. T.D. 1,988 ft.; tstg. S.O.

**Garfield County**

Roaring Fork Oil Co. No. 1 Patterson, C NE Sec. 36-7s-88w. S.D. 1,767 ft.; M.I. 4¾-in.

**LaPlata County**

N. Spatter No. 1-X Bryce, SE SW SW Sec. 31-33n-9w. Drlg. 1,960 ft.; W.S.O. at 1,860 ft. with 8¼-in.

**Las Animas County**

Hulme-Johnston-Allison No. 1 Azar, SE SE NW Sec. 27-34s-58w. Drlg. L. 335 ft. in 15½-in. hole; through Dakota.

**Mesa County**

Continental Oil Co. et al No. 1 Miller, SW SW NW Sec. 36-8s-91w. Drlg. 8,721 ft.

**Moffat County**

Isenberg-Parker-Myers No. 1 Myers-State, NW SE NE Sec. 36-4n-103w. Rdy. to spud.
Stanolind O. & G. Co. No. 5 SD Parkinson, CNL NW SE Sec. 22-4n-92w. T.D. 3,339 ft.; trying to S.O.W. behind lnr.
C. R. Provett No. 1 Sutton, NE NE SW Sec. 1-5n-96w. S.D. 860 ft. for 8¼-in.
MacKinnie Oil & Drlg. Co. No. 1 Coles, SW SW SE Sec. 1-3n-92w. S.D. 2,925 ft.

**Montezuma County**

McElmo Oil Co. No. 1 West, NE NW NW Sec. 31-36s-17w. Drlg. 4,815 ft.

**Park County**

South Park Oil Co. No. 1 Lemar, NE NE SE Sec. 34-11s-75w. Drlg. sdy. sh. 6,361 ft.

**Prowers County**

Continental Oil Co. No. 1 Ruby, C NE NW Sec. 31-21s-44w. T.D. 5,427 ft. in Viola L.; cd. 5,414-18 ft.; rec. 1½ ft.; no sat.; trying to res. circ.

**Pueblo County**

Eden O. & G. Co. No. 1 Horse Creek, SW SE Sec. 29-19s-64w. S.D. 1,860 ft.; M.I. 8¼-in.
C. E. Puckett No. 1 Barber, NW Sec. 35-21s-66w. Drlg. 812 ft. in wet hole; through Dakota.

**Rio Blanco County**

Buford Oil Co. No. 1 Govt., C SW SW Sec. 16-1n-91w. Drlg. light gr. calcareous sh. 3,367 ft.

**Routt County**

L. C. Craig and E. L. Moore No. 1-X Erwin, C SW NE Sec. 33-7n-85w. S.D. 160 ft.
Mid-Colorado Pet. Co. No. 1 Omholt, NE NE SE Sec. 29-4n-87w. S.D. 2,140 ft.; W.O. 6¼-in.
Steamboat Springs Drlg. Synd. No. 1 Brown, C NW NW Sec. 1-6n-86w. Cmtd. 8¼-in. 1,389 ft. in Morrison; S.D.

## WYOMING

**Big Horn County**

Yale Pet. Co. No. 2 Allen, Lot 52 (approx. SW NW SW Sec. 34-56n-97w). Drlg. 1,210 ft.
Kirk Oil Co. No. 1 Frisby, C SW SE Sec. 11-49n-94w. Drlg. 350 ft.
A. L. Rankin No. 1 Karjajla-Rankin, C SW NW Sec. 10-54n-94w. T.D. 580 ft. C.D.; P.B. to 575 ft.; will acd. and test S.O. in Embar 555-75 ft.
Prescott & Mileski No. 1 Govt., NE NW SW Sec. 15-1n-93w. T.D. 875 ft.; U.R. 8¼-in. to bttm.
Clifford S. Johnson No. 1 Johnson, CEL NW NW Sec. 24-51n-93w. Rig; W.O. engine.
Joan Oil Co. No. 1 Howell, NE NW NE Sec. 32-55n-97w. T.D. 2,470 ft.; str. crooked hole.
John H. Thomas No. 1 Govt., SW SW SE Sec. 3-54n-94w. Drlg. 675 ft.

### Carbon County

Sinclair-Wyoming Oil Co. No. 3 Mahoney, C SE NW Section 34-26n-88w, Mahoney dome, is on production and making 172 bbls. per day, beaned down. Rig has been moved for a south offset in No. 4 Mahoney.

Sinclair-Wyoming Oil Co. No. 4 Mahoney, CNL NE SW Sec. 34-28n-88w. R.U.R.; (first report).
Ohio Oil Co. No. 3-A Baker, SW NW SW Sec. 2-23n-79w. Cmtd. 10¾-in. 300 ft.; 225 sacks; W.O.C.
C. D. Cunningham et al No. 1 Union Pacific-fee, NW SE NE Sec. 21-22n-78w. Drk.; M.I.M.
Ohio Oil Co.-California Co. No. 5-A Kyle, C NW NE Sec. 26-21n-79w. Drlg. 3,668 ft.
Ohio Oil Co.-California Co. No. 3-A Kyle, C SW NE Sec. 26-21n-79w. T.D. 7,854 ft. in granite; P.B. to 5,660 ft.; swbd. 50 B.P.D.
Producers Oil Co. No. 1 Lake Valley, 200 ft. C of NL Sec. 14-20n-88w. T.D. 1,916 ft.; prep. to run 10-in.

**Converse County**

H. O. Emery et al No. 2 Roberts, C SW SE Sec. 2-31n-70w. Drlg. 254 ft.; S.G.
Jack Decker et al No. 1 Simonson, NW NE SE Sec. 16-32n-68w. S.D. 640 ft. for csg.
Wyshawn Oil Co. No. 2 Lindley, C SW SW Sec. 35-32n-69w. Drlg. Minnelusa 2,050 ft.
Fred Bunker No. 1 Pestal, SE NE NE Sec. 32-32n-69w. Drlg. 500 ft.
New Era Fuel Co. No. 2 Mary Gasper, CNL NW SW Sec. 25-32n-69w. S.D. 670 ft. without tstg.
Wyshawn Oil Co. No. 1 Lindley, NW SE SE Sec. 34-32n-69w. Drlg. 2,382 ft.
Wyoming Southern Oil Co. No. 1 Winda, SW NE NW Sec. 6-31n-69w. Loc.
Blue Ridge Oil Co. No. 1, SW NW SE Sec. 29-32n-69w. Spd. and S.D.

**Fremont County**

Frank Pouppirt No. 1 Fidelity Tr., SW NE SW Sec. 27-3n-1w, Pilot Butte area. Drlg. 330 ft.
Yellowstone Oil Co. No. 1 Govt., SW NE NW Sec. 27-38n-93w. Drlg. 740 ft. with C.T.
Lincoln O. & G. Co. No. 26 Tribal, NE SE SW Sec. 23-1s-1e. Drlg. 690 ft.
Tropic Oil Co. No. 1 Govt., C SE SW Sec. 34-27n-90w. Drlg. 3,445 ft.
Consolidated Oil Properties No. 3 Ewart, C SW SE Sec. 16-1n-1w. S.D. 1,150 ft.
Ben Stewart No. 1 Darnell, NE SE Sec. 26-3n-1w. S.D. 2,245 ft. for 7-in.
C. E. Nelson No. 8 fee, CWL NE SW Sec. 27-3n-1w. Drlg. 860 ft.

**Hot Springs County**

Italo Pet. Co. No. 1 Skelton-Govt., SE SW NE Sec. 13-44n-98w. Drlg. 1,760 ft.; wtr. in Sundance 1,434-50 ft.
J. W. Bailes No. 1 Govt., SE SW Sec. 28-43n-93w. T.D. 1,095 ft.; P.B. to 1,085 ft.; acd. 1,000 gals.; bailed rate 4 B.P.H.; will P.O.P.

**Lincoln County**

H. C. Harris et al No. 1 Govt., SE NW NW Sec. 23-21n-117w. Drlg. 960 ft.

**Natrona County**

General Pet. Corp. No. 1 State, NW NE SE Sec. 16-35n-77w. Drlg. in base Steele sh. 5,620 ft.
Stanolind O. & G. Co. No. 8 T.P.-Midwest Oil, C NW SW Sec. 35-40n-79w. T.D. 3,993 ft.; D.P. rec.; redrlg. 3,927 ft.

### Niobrara County

Continental Oil Co. No. 13 Tom Bell Cattle, SE NE SE Section 33-36n-65w, an inside well, and an east offset to Argo Oil Co. No. 4 Ford, was completed as a Sundance sand well at 3,974 feet. Swabbing started it flowing and it made 118 bbls. the first period swabbing and flowing and 195 bbls. the second period. It had the top of the first Sundance at 3,750 feet and basal Sundance at 3,913 feet. Rotary table elevation, 4,373 feet.

Ohio Oil Co. No. 1 Jones, SE NE SE Sec. 30-35n-62w. T.D. 206 ft.; cmtd. 10¾-in. 155 ft.; 125 sacks; W.O.C.
J. E. Manning No. 1 Hewitt-Govt., NW SW SW Sec. 4-35n-65w. Loc.
Cow Gulch Oil Co. No. 1 MaGoon, NE NE SW Sec. 33-35n-64w. Contr. to Ernest Hall; will spd. Nov. 1.
Ohio Oil Co. No. 6 Cash O.P.C.-2, NW NW NE Sec. 4-35n-65w. Drlg. sh. 3,115 ft.
MacKinnie Oil & Drlg. Co. No. 4 Thompson, SE SW NE Sec. 7-35n-65w. Drlg. in Minnekahta 4,867 ft.
Continental Oil Co. No. 1-B Dielman, SW SE NE Sec. 7-35n-65w. Drlg. dol. and anhy. 5,112 ft.
Ohio Oil Co. No. 11 Lamb Acct. 2, SW SE SE Sec. 5-35n-65w. T.D. 5,542 ft.; cmtd. 7-in. 5,450 ft.; good sat. in Leo sd.
Fall River Royalty & Producers Co. No. 1 Govt., CSL SE SE Sec. 35-40n-61w. Drlg. 415 ft.
H. D. Moore et al No. 1 Bergrem, NW Sec. 23-35n-63w. Drlg. 1,700 ft.
Adams O. & G. Co. No. 1 Baker, NW NE SW Sec. 8-35n-65w. Cor. loc.
Continental Oil Co. No. 2-B Dielman, NE NW NE Sec. 8-35n-65w. R.U.R.

**Park County**

Stanolind O. & G. Co. No. 26 Elk-2, near C NE Sec. 24-58n-100w. R.U.R.
Stanolind O. & G. Co. No. 18 Elk-5, NW NE NW Sec. 30-58n-99w. W.O. comp. No. 26 Elk-2.
Ohio Oil Co. No. 1 Trans.-Ark., CSL SW SW Sec. 30-57n-98w. T.D. 6,929 ft.; P.B. to 4,418 ft.; ran 4½-in. to 4,400 ft.; tstg.
Resolute Oil Co. No. 2 State, C SW SW Sec. 16-57n-101w. Cg. in Frontier 8,620 ft.; top 8,240 ft.

**Platte County**

Bill Griffin et al No. 1, NE SE NE Sec. 18-30n-67w. Drlg. 500 ft.; 10-in. at 185 ft.

**Sublette County**

Frontier Pet. Co. No. 1 Govt., SE SE SW Sec. 1-28-114w. S.D. 5,971 ft.; W.O. heavier equip.
Yellowstone Oil Co. No. 1, 200 ft. N of S line of the H. L. Budd ranch, SE SE Sec. 31-31n-112w. S.D. 10 ft.
Wyo. Pet. Co. No. 1 Chas. Budd, C NE NE Sec. 10-29n-113w. Drlg. 1,245 ft.
Progressive Oil Co. No. 1 Haddenham, C NE SE Sec. 21-28n-113w. Drlg. 832 ft.

### Sweetwater County

Sinclair-Wyoming Oil Co. No. 79, SE NE NE Section 10-29n-90w, Lost Soldier field, made 100 bbls. the first 24 hours from the Sundance sand at 1,888-1,967 feet on gas-lift. This is the first of a series of wells to the Sundance to be drilled with a portable rotary which was moved in recently. There are about 24 pumping wells in the Sundance. The field also produces from the Frontier, the Dakota-Lakota, and the Tensleep.

Sinclair-Wyoming Oil Co. No. 80, NE NE NE Sec. 11-26n-90w. T.D. 1,100 ft.; cmtd. 8⅝-in. at 928 ft.; W.O.C.
Selegna Oil Co. No. 1 Union Pacific, SW SW Sec. 11-20n-104w. S.D. 5,230 ft. for winter.

**Uinta County**

Stove Creek Oil Co. No. 1 Govt., NE SW NE Sec. 26-14n-119w. Drlg. 1,567 ft.
Stove Creek Oil Co. No. 2 Govt., C SW NW Sec. 26-14n-119w. S.D. 300 ft.

**Washakie County**

Paul Boether No. 1 Govt., SW NW Sec. 4-47n-90w. Drlg. 1,567 ft.
Frison Oil Co. No. 2 Govt., SE SW NE Sec. 24-47n-90w. Drlg. 145 ft.; (first report).

**Weston County**

Geo. Keisling No. 1, SE SE SW Sec. 26-46n-64w. M.I.M.
California Operators No. 1, SW SE Sec. 25-47n-63w. Loc.; contr. let.
Whedon et al No. 1, Sec. 21-46n-64w. Bldg. rig.
Taylor, Dodge & Pauley No. 4, C SW NW Sec. 17-46n-63w. Drlg. below 400 ft.
F. R. Dilger, Tr., No. 16, SW SW NE Sec. 30-46n-63w. Drlg. below 1,300 ft.
Updike Bros. No. 1, NE SW NE Sec. 35-46n-64w. T.D. 2,027 ft.; fsg.
West Osage Oil Co. No. 3, SW SE NE Sec. 15-46n-64w. Hd. tight sd. 2,140-54 ft.; will shoot.
John Borophy No. 1 George, SW SE NW Sec. 26-48n-64w. Drlg. 2,220 ft.

## MONTANA

**Big Horn County**

Buzetti & Corkins No. 1, NE NW Sec. 23-1s-32e. M.I.M.

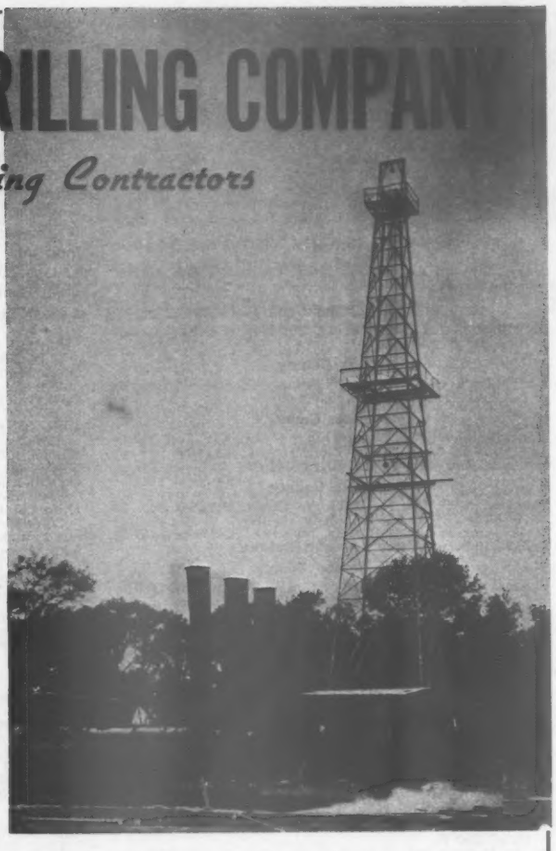
### Blaine County

Montana Gas Corp. No. 1 Duncan, C NW SE Section 6-32n-24e, which was drilled in search of a gas supply for the town of Harlem, was plugged and abandoned at 1,690 feet.

G. R. Teters No. 1 Stam, CSL SW SE Sec. 10-31n-18e.

# OIL WELL DRILLING COMPANY

*Drilling Contractors*



Offering the most modern in drilling equipment for service in West Texas-New Mexico, the Texas-Louisiana Gulf Coast, and the Illinois Basin. Our equipment includes both light and heavy duty steam rotary rigs for drilling to any desired depth, as well as efficient cable tool rigs. We maintain our own fleet of heavy duty trucks to facilitate transportation of our equipment. Our operators are thoroughly experienced in all phases of oil well drilling and completion.

**OIL WELL DRILLING COMPANY, DALLAS, TEXAS**

1123 LIBERTY BANK BLDG. Telephone: Local 2-1557, L.D. 892

Consult your leading oil field distributor today and learn the advantages derived from using "XL" couplings. Our special patented process for recessing means concentricity of recess in combination with threaded section of coupling, thus assuring accuracy in alignment of joints.

*Made to A.P.I. Standards.*

**WHEELING MACHINE PRODUCTS COMPANY**
WHEELING, W.VA.



*Want to STEP AHEAD?*

Reading important oil books is the surest route to

**SOLID SUCCESS**

For a FREE list of such oil books just address the

*Book Dept.*

**THE OIL AND GAS JOURNAL**
**Tulsa**


(formerly R. E. O'Keefe). S.D. 860 ft. for csg.; top Eagle 630 ft.

**Carbon County**

R. C. Tarrant No. 2, SE NW Sec. 4-6s-18e. Drlg. 2,400 ft.
Henderson Prod. Co. No. 1-H-11 Elk 11, SE SE NW Sec. 35-9s-23e. S.D. 1,810 ft.
R. C. Tarrant No. 2 Heare, NW SE NW Sec. 14-6s-19e. S.D. 2,335 ft. until spring.
Sha-Wha Pet. Co. No. 1 Govt., SW NW NE Sec. 35-9s-23e. S.D. 3,124 ft.
Miracle Oil Co. No. 2 Govt., CWL NE SE Sec. 4-6s-23e. T.D. 2,337 ft. (C.D.); C.O. to res.; will U.R. to bttm. and set csg.

**Choteau County**

Security Pet. Corp. No. 1 Johnson, C NE Sec. 23-26n-3e. S.D. 1,991 ft.; C.D. for 6⅝-in.; Sunburst 1,935-53 ft.

**Dawson County**

Frank C. Hughes No. 1 fee, NW NE SE Sec. 5-14n-55w. Drlg. 1,065 ft.

**Daniels County**

White Tail O. & G. Co. No. 2 Wiley, NW NW NW Sec. 10-36n-50e. T.D. 1,884 ft.; recond. hole.

**Fallon County**

Montana-Dakota Utilities Co. No. 45, Unit 7, SE NW SW Sec. 25-6n-60e. Drlg. 320 ft.

**Fergus County**

Baughman & Singley No. 1 Skaggs, C NW SW Sec. 7-15n-20e. S.D. 1,080 ft. (C.D.); in lower Quadrant.

## Glacier County

Cut Bank had one completion and two new operations. Texas Co. No. 1 Bonnet, NW SE SE Section 8-32n-5w, swabbed 24 bbls. the first 24 hours at 2,953 feet after plugging back from 2,970 feet and shooting 2½, 2½, and 3 quarts.

International Pipe Line Co. put in a new rate schedule on crude from Cut Bank to Sunburst on October 10, the new rate being 10 cents per barrel as against 12½ cents.

Texas Co. No. 3 Curran, NE NE NW Sec. 8-32n-5w. Loc.; (first report).
Consolidated Gas Co. No. 1 Tribal, NW NE NW Sec. 18-32n-5w. R.U.; (first report).
Glacier Prod. Co. No. 3 Van Ormer, CEL NW Sec. 17-33n-5w. Drlg. 450 ft.
Glacier Prod. Co. No. 1 Parker Unit, C N½ Sec. 28-34n-5w. Spdg. 140 ft.
K. D. Pardee No. 2 Tribal-179, CEL NE SE Sec. 12-32n-6w. Drlg. 360 ft.
M. R. Wagner No. 1 Tribal-173, CEL SE SE Sec. 12-32n-6w. Drlg. 2,110 ft.
C. P. Castle No. 4 State, CNL SW SW Sec. 36-35n-6w. Drlg. 1,380 ft.; Colo. 430 ft.; 10¾-in. 456 ft.
Santa Rita O. & G. Co. No. 3 Lander, C S½ SE Sec. 16-35n-6w. Loc.

**Judith Basin County**

Fletcher E. Hunt No. 1 Hoven, SE NE NW Sec. 30-14n-15e. Spdg.
Fletcher E. Hunt No. 3, NW SE NE Sec. 30-14n-15e. Res. at 1,825 ft.

**Park County**

Ben Ryan et al No. 1 Burgess, SE SW NW Sec. 28-2s-11e. Drlg. 1,550 ft.

**Petroleum County**

H. Clark Rowland No. 1 Brundidge-Mink, SE NW Sec. 35-14n-25e. Skdg. rig from No. 1 Kalispel.
Watson Oil Co. No. 1 Austed, SW NW SE Sec. 22-13n-28e. Cmtd. 12½-in. at 520 ft.; drlg. plug.
O. B. Canfield No. 2 Govt., SE NE NE Sec. 21-17-24e. Drlg. 779 ft.

**Phillips County**

Treasure State Pool O. & G. Co. No. 4 Govt., C SE SW Sec. 2-24n-23e. Drlg. 930 ft.

## Pondera County

Jones-Chambers No. 1 Erickson, SW SE SW Section 3-27n-4w, Pondera field, a semiwildcat, had the contact at 1,898-1,901 feet, and sulfur water in the Madison at 1,940 feet. After drilling deeper to 1,960 feet, it was plugged and abandoned.

**Richland County**

W. M. Fulton No. 1 Richardson, SW SW SE Sec. 29-26n-52e. Drlg. 540 ft.; small S.W. at 435 ft.

**Teton County**

Zodiac Oil Co.-Gulf States Oil Co. No. 1 Kellogg, NE NW NE Sec. 33-28n-5w. Drlg. 200 ft.; 8⅝-in. at 32 ft.
California Co. No. 1 Unit, NE SE SW Sec. 26-27n-9w. Drlg. below 1,977 ft.
Gulf State Oil-Zodiac Oil Co. No. 1 Coffee-Wallenstein, SW SW SW Sec. 5-27n-5w. T.D. 2,525 ft.; redrlg. at 2,320 ft.

## Toole County

There were no completions and one new operation in Kevin-Sunburst.

P. L. Eddy No. 1 Sohn, SE SW NE Sec. 23-35n-3w. T.D. 1,500 ft.; rng. 6⅝-in.
C. L. Smith, Agt., No. 1 Govt., SW SE NW Sec. 13-35n-2w. Drlg. 170 ft.
Sorrell No. 1 Ward, C NE NW Sec. 1-34n-4w. Spdg.
Big West Oil Co. No. 4 Engle, SW SW SW Sec. 1-35n-3w. T.D. 1,100 ft.; cmtd. 8¾-in.; W.O.C.
Aspen O. & R. Co. No. 1 Govt., C NE SE Sec. 25-36n-3w. T.D. 1,875 ft.; rng. 6⅝-in.
C. D. Stocks No. 3 Haggerty, SE NW SW Sec. 13-35n-2w. S.D. 1,580 ft. until spring.
W. M. Cassidy No. 1 Phoenix, CNL NW NW Sec. 28-35n-4w. S.D. 2,105 ft.
Fulton-Commonwealth No. 2 Thompson, NW NE SW Sec. 28-35n-3w. Drlg. 930 ft.
H. C. Morton No. 8 Morton, C SW NW Sec. 24-34-2w. S.D. 1,440 ft.; good S.O. after acd.

*(Continued on Page 215)*

# Kansas Developments

By
DAL DALRYMPLE

# Bloomer Extended Into Rice to Become Four-County Pool

The Bloomer pool, one of Kansas' major producing areas, was extended into Rice County the past week when Gulf Oil Corp. found the pay in its No. 1 Ames, NW cor. Section 6-18-10w. This makes Bloomer a three-county field as it was opened in Barton County and extended into Ellsworth County. The well is the farthest northwest producer in Rice County. It found Arbuckle lime at 3,235 feet, was bottomed at 3,244½ feet, and made initial potential of 2,098 bbls. of oil. Ultimate connection of the Bloomer field with the Habiger pool 1 mile to the east in Rice and Ellsworth counties is anticipated by oil men.

Newest Cowley County pool opener, Pryor & Lockhart and Gerald M. Smith No. 2 Wilson, NE NW NW Section 9-33-6, was near completion as an Arbuckle producer. It had the lime at 3,514-17 feet, and gauged 50 bbls. of oil on initial test. The oil is to be trucked 8 miles northward to the Burden station of the White Eagle division of Socony-Vacuum Co. Work has started at the operators' No. 1-A Kingsbury, SW SE SW Section 4-33-6, northeast offset to the discovery well.

The South Gurney pool in Russell County was extended one-fourth mile westward as Stanolind Oil & Gas Co. No. 1-A Krug, NE cor. Section 27-14-14w, produced 300 bbls. of oil in four hours after acidizing. It was bottomed at 2,988 feet in Lansing lime.

The Evans pool of northern Woodson County was extended into southern Coffey County at Ward McGinnis No. 1 Peak, SW SW SE Section 16-23-15. The pool was opened in June at Phil-Han Oil Co. No. 1 Evans, NE NE SW Section 21-23-15.

Work has started at Central States Oil Co. No. 1 Crawford, NW SW NE Section 26-13-3w, wildcat 2 miles north of Salina in Salina County. Location is on a 5,400-acre block farmed out by Carter Oil Co., on a regional anticline ranging north-northeastward from the Lindsborg area in McPherson County. Arbuckle lime, the objective, is expected at around 3,600 feet. C. A. Blankenship and Coronado Oil Co. have the drilling contract.

## Wildcat Completions

Atlantic Refining Co. No. 1 Nunn, C SE NE Section 27-21-34w, pool opener in northwestern Finney County, was deepened from 4,658 feet to 4,718 feet, total depth, but failed to increase production and was recompleted for old potential of 604 bbls. of oil on the pump. Production was from the Mississippi formation topped at 4,605 feet.

Continental Oil Co. and others No. 1 Gray, SW SE SE Section 26-17-8w, wildcat north of the Edwards pool in Ellsworth County, topped Arbuckle lime at 3,295 feet, total depth 3,310 feet, water intruded, it was plugged back to 3,215 feet but failed to develop production and was abandoned.

Joe Nathan and others No. 1-A Hassenpflug, NW NE NE NE Section 2-26-14, Woodson County wildcat, had Mississippi lime at 1,556-74 feet, total depth, the hole filled with water and it was abandoned.

## Russell County

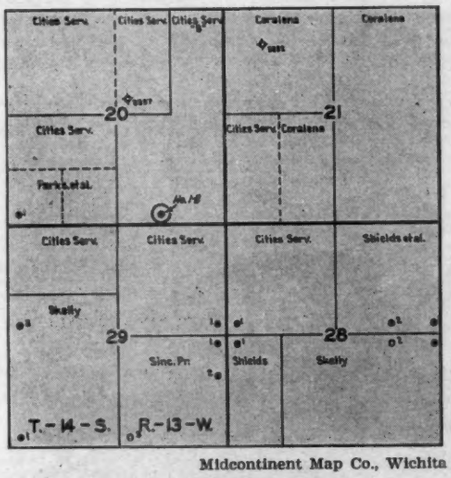
W. I. Southern, Inc., No. 1 Weimeister, NE NE NW Section 3-15-13w, South Letsch pool, Russell County, topped Arbuckle lime at 3,299 feet, was bottomed at 3,300 feet, plugged back to 2,984 feet, pumped 1 bbl. of oil and 3 bbls. of water an hour and was abandoned.

R. H. Shields No. 6 Letsch, NW NW SE Section 27-14-13w, Letsch pool, had Lansing lime at 2,845 feet, total depth 2,904 feet, was acidized, and made potential of 1,808 bbls. of oil.

Mid-Continent Petroleum Corp. No. 4 Letsch, SW SE NW Section 26-14-13w, pumped 298 bbls. of oil in eight hours after acidizing and made potential of 892 bbls. of 38.8-gravity oil. Lansing lime was topped at 2,845 feet, total depth 2,869 feet.

Polcyn Brothers No. 3 Polcyn, NW SW SE Section 10-14-15w, Gorham pool, topped Gorham sand at 3,251 feet, total depth 3,255 feet, pumped 466 bbls. of 35-gravity oil in eight hours and made potential of 1,398 bbls. Wolf Creek Oil Co. No. 2 Witt, Section 10-14-15w, was an abandoned rig.

Lauck & Moncrief No. 3 Miller A, SW SE NW Section 29-13-14w, North Balta pool, entered Arbuckle lime at 3,292 feet, water intruded and it was abandoned at 3,365 feet, total depth.




Midcontinent Map Co., Wichita

*New producing area one-half mile north of the Letsch pool, Russell County, opened at Cities Service Oil Co. No. 1-B Rogg*

Stanolind Oil & Gas Co. No. 4 Bronson, NE NW SE Section 20-11-15w, Fairport pool, was acidized and pumped 190 bbls. of oil and 78 bbls. of water in eight hours, making potential of 606 bbls. of 40-gravity oil. Kansas City lime was found at 3,084-3,106 feet, total depth.

## Stafford County

Five new flowing wells were completed in the Zenith pool, Stafford County. One other completion in that county was in the Gates pool.

Stanolind Oil & Gas Co. No. 3 Fuller, NE NE SW Section 11-24-11w, Zenith pool, had Misener sand at 3,762 feet. total depth 3,771 feet, flowed 245 bbls. of 42-gravity oil the first four hours, 193 bbls. the next four hours and made potential of 1,375 bbls.

E. H. Moore, Inc., No. 6 Johnson, NE SE SW Section 13-24-11w, flowed 253 bbls. of oil in eight hours, was shot and made potential of 657 bbls. Misener sand was topped at 3,784 feet, total depth 3,812 feet.

Stanolind Oil & Gas Co. No. 3 Emma Martin, NE SE NW Section 14-24-11w, found Misener sand at 3,799 feet, was bottomed at 3,818 feet, flowed 385 bbls. of oil in eight hours and made potential of 2,754 bbls.

Same company's No. 4 Emma Martin, SE NE NW Section 14-24-11w, flowed 249 bbls. of oil in four hours and was rated potentially at 3,024 bbls. Top of Misener sand was 3,795 feet, total depth 3,805 feet.

Pure Oil Co. No. 9 Krey, SW NE SE Section 14-24-11w, found Misener sand at 3,783 feet, total depth 3,806 feet, plugged back to 3,802 feet, was shot, flowed 218 bbls. of oil in one and one-half hours and made potential of 2,380 bbls.

In the Gates pool, Magnolia Petroleum Co. No. 3 Mattie Gates, NW NE NE Section 34-21-13w, entered Arbuckle lime at 3,660 feet, was bottomed at 3,661 feet, acidized with 1,000 gallons, pumped 428 bbls. of oil in eight hours and made potential of 1,273 bbls. of 28-gravity oil.

## Barton County

Shell Petroleum Corp. No. 3 Stettinger, SW SW SE Section 1-16-14w, Barton County sector of the Trapp field, topped Arbuckle lime at 3,312 feet, total depth 3,334 feet, was treated with 2,000 gallons of acid, pumped 807 bbls. of oil in eight hours and earned potential rating of 2,422 bbls.

Same company's No. 8 Hoffman A, SW Section 7-16-13w, South Trapp pool, was shot and acidized, pumped 76 bbls. of oil and 10 bbls. of water in eight hours and made potential of 228 bbls. of oil. Top of Arbuckle lime was 3,326 feet, total depth 3,365 feet.

Magnolia Petroleum Co. No. 5 Mueller, SE NE NE Section 1-18-11w, south end of the Bloomer field, found Arbuckle lime at 3,240 feet, was bottomed at 3,249 feet, pumped 535 bbls. of oil in eight hours and made potential of 1,605 bbls. of 43-gravity oil.

Shell Petroleum Corp. No. 1 Putnam, SE SE SW Section 3-17-13w, Ainsworth pool, was treated with 3,000 gallons of acid, pumped 339 bbls. of 38-gravity oil and 27 bbls. of water in eight hours and made potential of 1,016 bbls. of oil. Production was from Arbuckle lime topped at 3,377 feet, total depth 3,396 feet.

In the South Silica pool, Lario Oil & Gas Co. and Atlantic Refining Co. No. 1 Reiser, NW Section 23-20-11w, topped Arbuckle lime at 3,282 feet, total depth 3,306½ feet, was acidized, pumped 202 bbls. of oil in eight hours and made potential of 606 bbls.

Stanolind Oil & Gas Co. No. 3 Rose, CSL S half NE Section 3-20-11w, Silica field, was acidized and made potential of 273 bbls. of 43-gravity oil, producing from Arbuckle lime topepd at 3,300 feet, total depth 3,312 feet. Gravity of the oil was 43 degrees.

## Estimated Daily Production

Estimated daily production for Kansas for the week ending October 22, and for the preceding week, was as follows:

| | Oct. 22 | Oct. 15 |
|---|---|---|
| Oxford City | 1,125 | 1,125 |
| Burrton | 9,550 | 8,260 |
| Ritz Canton | 4,200 | 4,225 |
| Graber | 3,250 | 3,225 |
| Hollow-Nikkel | 2,850 | 2,275 |
| Lerado | 825 | 950 |
| Voshell | 1,875 | 1,900 |
| Wellington | 2,325 | 2,075 |
| Ellsworth County: | | |
| Lorraine | 2,075 | 2,025 |
| Other pools | 1,287 | 2,200 |
| Rice-Barton counties: | | |
| Bloomer | 1,775 | 2,500 |
| Chase | 3,975 | 4,425 |
| Geneseo | 3,400 | 3,075 |
| Raymond | 675 | 750 |
| Silica | 10,025 | 9,925 |
| South Silica | 1,700 | 1,675 |
| Keesling | 700 | 850 |
| Wherry | 3,100 | 3,550 |
| Miscellaneous Barton | 6,515 | 6,565 |
| Miscellaneous Rice | 5,695 | 3,940 |
| Russell County | 20,675 | 23,995 |
| Sedgwick County | 3,875 | 3,675 |
| Ellis County: | | |
| Bemis | 5,075 | 5,525 |
| Miscellaneous | 3,055 | 2,735 |
| Kingman County | 545 | 720 |
| Stafford County | 4,575 | 4,660 |
| Greenwood County | 9,750 | 9,700 |
| Butler County | 18,775 | 19,550 |
| Other fields | 20,503 | 19,200 |
| Total Kansas | 153,750 | 155,275 |

## Rice County

Shell Petroleum Corp. completed No. 9 Zajic, NW SE NE Section 13-18-8w, Geneseo field, Rice County, for potential of 2,788 bbls. of 40-gravity oil. It topped Arbuckle lime at 3,203 feet, was bottomed at 3,227 feet, acidized and pumped 929 bbls. of oil in eight hours.

In the Habiger area, Skelly Oil Co. No. 5 Volkland B, NW SE NW Section 5-18-10w, had Lansing lime at

2,984-3,007½ feet, total depth, was treated with acid and flowed 268 bbls. of oil in eight hours through tubing, making potential of 803 bbls. of oil, with gas gauging 4,400,000 feet the last hour of test.

Shell Petroleum Corp. and others No. 1 Piehler, NW cor. Section 14-19-9w, North Cramm pool, entered Arbuckle lime at 3,272 feet, total depth 3,279 feet, pumped 370 bbls. of 48-gravity oil and 91 bbls. of water in eight hours and earned potential rating of 1,110 bbls., naturally.

In the Chase field, Stapleton and others No. 1 Laton, SE SW NW Section 29-19-9w, had Arbuckle lime at 3,229 feet, total depth 3,246 feet, was acidized, pumped 251 bbls. of oil in eight hours and made potential of 752 bbls. of 46-gravity oil.

### Ellis County

Two large producers were completed in the South Burnett pool, Ellis County. Darby Petroleum Corp. No. 3 Jorgensen, NW SW SW Section 7-11-17w, found Arbuckle lime at 3,329 feet, drilled to 3,334 feet, total depth, and was estimated good for flowing potential of 2,000 bbls. of 32-gravity oil daily.

Dickey Oil Co. No. 1 Henderson, SW SW NE Section 7-11-17w, also was estimated good for 2,000 bbls. of oil daily on the pump. Top of Arbuckle lime was 3,421 feet, total depth 3,430 feet.

Derby Oil Corp. No. 5 Sander, SE SW NE Section 3-14-17w, Toulon area, had Arbuckle lime at 3,646-82 feet, total depth, and was dry and abandoned.

### Cowley County

Texas Co. No. 1 Ross, SW SE SE Section 21-31-4, an old well in the Hittle pool, Cowley County, was deepened and recompleted for flowing and pumping potential of 2,304 bbls. of 39-gravity oil. It was deepened from 2,395 feet to Arbuckle lime at 3,278-88 feet, total depth, and flowed and pumped 768 bbls. of oil in eight hours.

McKnab No. 1 Byers Land Co., SE NE NW Section 21-32-5, had Bartlesville sand at 3,046-48 feet, was bottomed at 3,064 feet, pumped 241 bbls. of oil in eight hours and made potential of 724 bbls.

Arthur Brewer No. 1 Joslin, NW SE SW Section 16-30-4, Rock pool, had dry Mississippi lime at 2,868-71 feet, total depth, and was dry and abandoned.

### Ellsworth County

Transwestern Oil Co. and others No. 1 Daugherty, SE SE NE Section 32-17-10w, Stumps area, Ellsworth County, found Arbuckle lime at 3,258-74½ feet, total depth, pumped 365 bbls. of 42-gravity oil in eight hours and was given potential rating of 1,102 bbls.

### McPherson County

Continental Oil Co. No. 4 Boechner A, NW NW SW Section 28-21-1w, Graber pool, McPherson County, was treated with 4,000 gallons of acid, pumped 169 bbls. of 41-gravity oil in eight hours and was completed for potential of 506 bbls. Top of Hunton lime was 3,334 feet, total depth 3,352 feet.

McPherson Drilling Co. No. 1 Ostlind, C NE SE Section 10-19-2w, Ritz-Canton field, had chat at 2,906-41 feet, total depth, water intruded and it was plugged back to 2,939 feet. It made potential of 16 bbls. of 37-gravity oil after acidizing.

### Pratt County

Atlantic Refining Co. and associates No. 1 Luders, NW SW NE Section 11-27-13w, Iuka pool, Pratt County, was acidized with 2,000 gallons, pumped 265 bbls. of oil in eight hours and was completed for potential of 795 bbls. Simpson dolomite was found at 4,305 feet, total depth 4,319 feet.

### Rush County

Morgan & Flynn and others No. 1 Dirks, C N half NE NE Section 35-18-16w, Otis field, Rush County, found basal sand at 3,570 feet, had a hole full of water at 3,604 feet and was dry and abandoned at 3,631 feet, total depth.

### Greenwood-Woodson-Coffey

Braden and others No. 1-A Dalton, C SE NE Section 11-24-12, Virgil pool, Greenwood County, had Mississippi lime at 1,727-51 feet, total depth, and pumped 15 bbls. of oil in 24 hours.

Frank Young No. 2 Lauber, SW SE Section 21-25-15, Yates Center area, Woodson County, was completed as a 10-bbl. pumper. Top of Mississippi lime was 1,497 feet, total depth 1,507 feet.

J. G. Bunch No. 1 Boyd, NE NW SW Section 28-25-14, Woodson County, failed to find Bartlesville sand and was abandoned at 1,445 feet, total depth.

Woodson Pipe Line & Production Co. No. 2 Campbell, Section 7-24-14, Woodson County, had Mississippi lime at 1,680 feet, was bottomed at 1,726 feet, was shot and pumped 3 bbls. of oil daily.

Ward McGinnis No. 1 Peak, SW SW SE Section 16-23-15, Coffey County, found Mississippi lime at 1,530 feet, drilled to 1,553 feet, total depth, was acidized with 1,000 gallons and pumped 20 bbls. of oil daily.

## Eastern Fields

*(Continued from Page 204)*

In Ritchie County, the Nollem Oil & Gas Co. made a location on C. A. Kerns in Grant district. In Murphy district, Mudlick Oil & Gas Co. made location on H. S. Phillips farm. In same district Clem I. Morris made location on W. B. Cunningham farm. In Roane County, Harry Anderson is drilling at 610 feet in the J. W. White in Smithfield district. In Wayne County, Huffman & York have reached 600 feet in the Murty Darr well in Butler district; the Chartiers Oil Co. has shut down to test the casing in its H. S. Jackson.

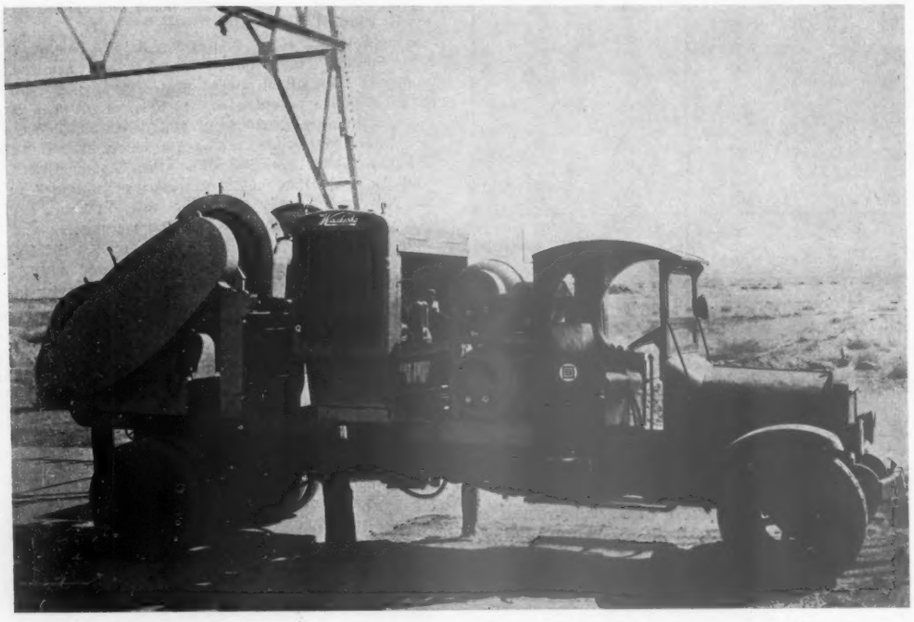
In Wetzel County, the Manufacturers Light & Heat Co. was hauling a rig to the Ralph Montgomery lease in Proctor district. Daniel Henthorn and others are drilling at 265 feet in No. 1 R. B. Chance; Thomas Kinley & James Fonner are shut down at 580 feet in their R. B. Chance test. No new locations were reported in the vicinity of Proctor in Wetzel County during the past week.

### Four-Mile Extension Made in Barco Concession

A 4-mile south extension to the La Petrolea producing area in the Barco concession of eastern Colombia was completed early this month by Columbian Petroleum Co.

The extension producer, Colombian Petroleum Co. No. 31 Petrolea, was completed at 495 feet flowing 4,188 bbls. of 45° A.P.I. gravity crude per day.

★ Third of a series of advertisements featuring the use of Butane fuel in the Oil Industry.



# PORTABLE WELL-SERVICING OUTFITS OPERATE ON BUTANE

**Well-servicing requires reliable, economical power and BUTANE is an ideal fuel for this type of work.**

**The illustration above is typical of many of the well-servicing outfits used in the oil fields of California. The truck engine and the power unit operate on BUTANE with ENSIGN Carburetion equipment. Note BUTANE tanks back of truck cab.**

**Manufacturers of highest-quality carburetors for twenty-seven years, ENSIGN has also pioneered the development of carbureting equipment for BUTANE fuel.**

**Write the factory at Los Angeles or branches for literature about BUTANE and its advantages as a fuel for internal combustion engines.**

**ENSIGN CARBURETOR CO., LTD.**
LOS ANGELES · DALLAS · CHICAGO

# Extend Harper, Deep Rock and Tubbs Pools in W. Texas

By D. H. STORMONT

FORT WORTH, Tex., Oct. 24.—Extensions to the Harper pool in Ector County, the Tubbs pool in Crane County, and the Deep Rock pool in Andrews County featured the development in the West Texas area, while new locations marked the week's activity in West Central Texas.

Extending the Harper area a half mile to the west, L. H. Wentz, oil division, No. 8 Moss, Section 28, Block 44, T.&P. Survey, flowed 187 bbls. in 24 hours. The well, drilled to 4,485 feet to determine the water level, was plugged back to 4,082 feet and shot with 325 quarts from 3,992 feet to 4,050 feet, developing considerable gas. It had logged showings from 3,992 feet to 4,000 feet and from 4,012 feet to 4,042 feet. Slightly over 3 miles northwest of the Harper area, Bert Fields No. 1 Owenwood-Speer, a wildcat in Section 6, Block 44, was showing a small amount of oil as contract depth of 4,500 feet was reached. The owner was reported planning to plug back. Several showings were found throughout the course of drilling.

### Tubbs Extension

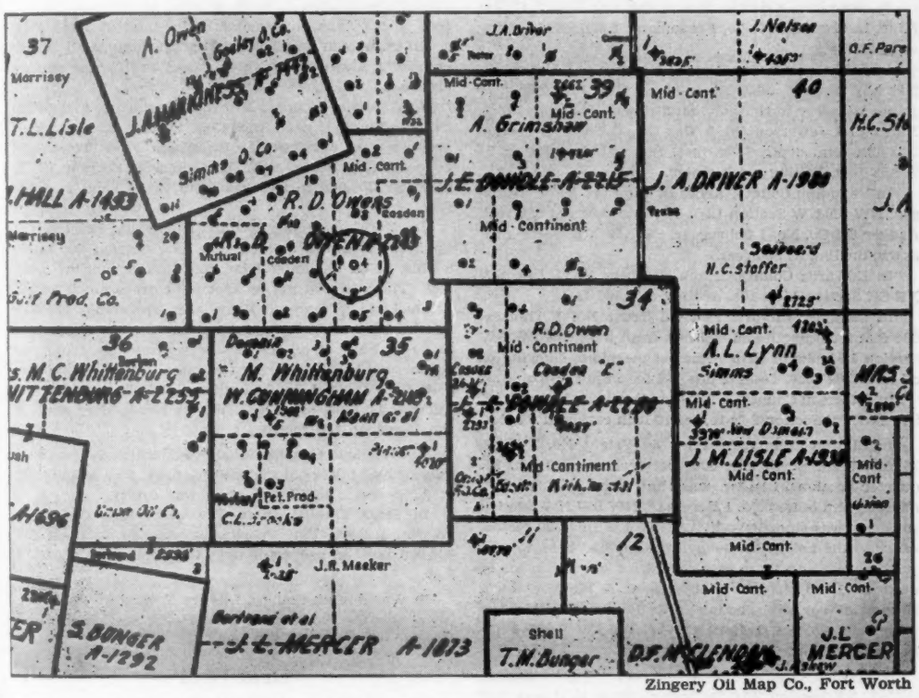
Extending the Tubbs area of western Crane County a mile and a quarter to the southeast, Aloco Oil Co. No. 1-A Tubbs, Section 20, Block 32, P.S.L. Survey, was reported to have flowed 193 bbls. of oil in 18 hours through 2½-inch tubing after second-stage acid treatment. Bottomed at 4,504 feet in lime, the test encountered oil and gas stained lime from 4,250-4,419 feet and from 4,270-93 feet.

J. W. Tripplehorn No. 1 M. A. Thornberry, Section 2, Block A-42, P.S.L. Survey, three-quarters of a mile southeast of the Deep Rock area of Andrews County, was reported making 750,000 feet of gas daily while drilling below 4,214 feet. Gas was found from 4,160 feet to 4,205 feet. Also in Andrews County, a mile and a half northwest of the Rogers & Rogers discovery area, in the southern part of the county, the same operator's No. 1 University, Section 40, Block 9, was expected to plug back after failing to develop commercial production to a total depth of 4,539 feet.

### North Basin Area

Hockley & Cochran counties centered the activity in the North basin area. Half a mile northeast of the eastern edge of the Slaughter pool of Hockley County, Snowden & McSweeney No. 1 Slaughter, Labor 74, League 35, Zavalla County School Land Survey, was running tubing to acidize at a total depth of 5,069 feet, where the test had bailed 15 gallons of oil per hour with 3 quarts of salt water.

Cochran County received a dry hole when Magnolia Petroleum Co. abandoned No. 1 Della Slaughter Wright, Labor 7, League 96, Mills County School Land Survey. Total depth was 5,054 feet, where sulfur water was uncovered.




Zingery Oil Map Co., Fort Worth

*Mid-Continent Petroleum Corp. No. 4 Owens is indicating a new deep producing horizon in the old Oil City pool of Young County*

### WEST CENTRAL TEXAS

New producing horizons for two Young County pools and the staking of wildcat locations in four West Central Texas counties featured the activity in the area over the past week.

A new producing horizon was opened in the pool discovered by Tex-Tor Oil Co. last summer when the third well drilled by the company in the area found oil at 2,472 feet. It is a quarter of a mile northeast of the discovery well completed at 3,775 feet. Location is in the southwest corner of the Mosley Survey. After drilling only 2 feet of the sand, oil began spilling over the top of the casing. The crew was cleaning out the well for a production test.

Deeper pay in the old Oil City pool, Bunger district, Young County, about 7 miles south of Graham, was indicated when the Mid-Continent Petroleum Corp. No. 4 R. D. Owens, southwest quarter of Abstract 2245, began flowing through 8-inch casing after finding a new horizon while deepening from the pool's old 2,100-foot producing level. The test encountered pay at 2,420 feet and no estimates of its production were made. One-half mile northeast of Bunger, Floyd H. Scott was reported rigging up No. 1 Rhoades, B. F. Kutch Survey, Abstract 1333.

### Wildcats in Haskell

Haskell County received two new wildcat locations. Fred Browning staked No. 1 T. P. Hughes, Section 46, Block 3, L. Dychess Survey, 2 miles east and slightly north of Pardue discovery well. W. H. Harrison and others spudded No. 1 Whitesides, Subdivision 43, Red River C.S.L. Survey. It is now drilling below 300 feet on a 4,000-foot contract.

Throckmorton County's important well which has indicated production from a deep horizon for many weeks, will be plugged back for completion at a higher level. It is Danciger Oil & Refining Co. (Jones & Stasney) No. 1 Brockman. Total depth is 4,716 feet and the test will be plugged back to a showing in the Caddo lime at 4,286-4,370 feet.

### New Tests in Jones County

Two new wildcat tests will seek oil production in Jones County. G. M. Gillispie made a location in Section 46, Orphan Asylum Survey. It will test all sands to and including the Swastika horizon, expected at around 2,500 feet. Luther Hedrick and others staked No. 1 Ackard in Section 137, G. Mattinez Survey, and is contracted to 2,600 feet.

In Dickens County, contractors are moving in materials for test 8 eight miles west of Spur on a block of about 3,000 acres taken over from J. F. Morrissey by Nat Anderson and E. L. Henson. The well will be an east offset to Morrissey's No. 1 Bird, recently abandoned after water ruined a completion attempt. The new test is in Section 290, H.&T.C. Survey.

A new wildcat for Palo Pinto County was spudded by W. D. Dilbeck and others in the Dalton lands, Section 1789, T.E.L. Survey, seeking production from around 1,300 feet.

### WEST CENTRAL TEXAS COMPLETIONS

(24-hour production)

#### Coleman County

Leland Fikes No. 1 S. H. Stevens, dry and abandoned at 721 feet.

#### Concho County

Sam Murray No. 1 Armor, temporarily abandoned at 535 feet.

#### Jones County

Danciger Oil & Refining Co. No. 2 Edmonds, 1,937-50 feet, 142 bbls. Sandy Ridge Oil Co. No. 2 W. L. Steffens, 1,874-98 feet, 351 bbls.

#### Shackelford County

Harry Beaumont No. 1 Harbough, 406-15 feet, 8 bbls. John E. Carson No. 1 M. Davis, dry and abandoned at 1,670 feet. L. F. Hooker No. 2 Anna Fry, dry and abandoned at 431 feet.

#### Stephens County

Lone Star Gas Co. No. 1 J. S. McKee, 3,723-28 feet, 408,000,000 feet of gas.

#### Stonewall County

General Crude No. 1 J. D. Smith, dry and abandoned at 5,735 feet.

## Illinois Fields

*(Continued from Page 193)*

bbls. Pure Oil Co. No. 1 Wakefield, C W half NW NE Section 26-4n-9e, pay at 2,926 feet, total depth 3,003 feet, plugged back to 2,583 feet, pumped 514 bbls.

### Wayne County

In Wayne County, T. W. Eason No. 1 Twist, NE NE SE Section 32-2s-7e, McClosky pay at 3,328-36 feet, flowed 500 bbls. through casing and tubing (estimated). Pure Oil Co. No. 1 Sessell, McClosky pay at 3,328-34 feet, acidized with 5,000 gallons, pumped 127 bbls. of oil and 150 bbls. of salt water. H. H. Weinert No. 4 Morlan B, NE NW NE Section 33-2s-7e, McClosky pay at 3,301-03½ feet, flowed 23 bbls. per hour through a half-inch choke.

Texas Co. No. 2 Heaton, C W half SE NE Section 17-3s-7e, Ste. Genevieve lime at 3,222 feet, total depth 3,352 feet, flowed 409 bbls. H. H. Weinert No. 1 Morlan B, SW NE NW Section 33-2s-7e, McClosky lime at 3,299 feet, pay at 3,301-20 feet, flowed 270 bbls. in six hours, choked. Texas Co. No. 1 Koontz B, NE NW SE Section 33-2s-7e, pay at 3,389-96 feet, total depth 3,432 feet, pumped 161 bbls. of oil and 44 bbls. of water and sediment, after an acid treatment. H. H. Weinert No. 2 Morlan A, C N half SE NW Section 33-2s-7e, McClosky lime at 3,308 feet, total depth 3,321 feet, flowed 180 bbls. in six hours, choked.

### Scattered Completions

In Jefferson County, Sam Jennings and others No. 1 Patton, NW cor. NE SW Section 1-1s-1e, Bethel sand at 1,820 feet, total depth 1,840 feet, dry and abandoned. V. O. Lewis and others No. 1 D. D. Hardy, NW NW NE Section 6-1s-1e, hole full of water at 1,154 feet, abandoned. Carter Oil Co. No. 1 Vera Hawkins, SE NW SE Section 9-1s-2e, Bethel at 1,942-60 feet, shot with 15 quarts, pumped 283 bbls. of oil, cut 2 per cent. Carter Oil Co. No. 1 Henry Roy, NE SW SE Section 9-1s-2e, Bethel at 1,936-51 feet, pumped 276 bbls.

In Effingham County, W. D. Anderson No. 1 Haker, NW SW SW Section 27-8n-4e, dry and abandoned at 2,036 feet; Weiler and Benoist sands were dry.

In Cumberland County, Ray Fisher and others No. 1 Ross Cable, C E half NE NW Section 26-9n-9e, topped Fredonia at 2,735 feet and was abandoned as dry at 2,825 feet. Phillips No. 1 George Ozee, NE SE NE Section 27-11n-8e, dry and abandoned at 2,411 feet.

In Coles County, Thompson Drilling Co. No. 1 Digler, SE NE NE Section 9-12-7e, dry and abandoned at 2,277 feet, with St. Louis lime at 2,215 feet.

In Washington County, Morris and others No. 1 Beaughn, SW SW NW Section 12-1s-1w, Stein sand at 1,570 feet, dry and abandoned at 1,675 feet.

In Lawrence County, Ullom & Purnell No. 1 Barrett, NE NW NW Section 8-2n-11w, McClosky pay at 1,827 feet, total depth 1,884 feet, acidized with 3,000 gallons and with 1,500 gallons, pumped 50 bbls. Herbst No. 2 Houghton, C SW SE Section 12-4n-11w, Bridgeport sand at 826 feet, gas at 842 feet, total depth 1,091 feet, perforated casing opposite gas sand and well made 6,500,000 feet of gas.

In Christian County, Brown & Lacy No. 1 McGuire, SW SW NW Section 32-12n-1w, dry and abandoned at 1,457 feet, Benoist at 1,273 feet.

In Clark County, Stipes and others No. 2 Wilhoit, SE NE NW Section 30-12n-13w, dry and abandoned at 1,600 feet.

In Jefferson County, Nollem & Benoist No. 1 Kelly, NE NW NE Section 25-4s-2e, an old well deepened from 3,007½ feet to 3,064 feet, pumped 150 bbls. in 24 hours. J. Garfield Buell No. 1 Glick Real Estate Co., NE NW NW Section 5-3s-4e, McClosky lime at 3,103 feet, total depth 3,166½ feet, dry and abandoned.

In St. Clair County, Badger Oil Co. No. 1 Reichart, C N half N half N half Section 3-1s-10w, hole junked and abandoned at 105 feet.

In Effingham County, Carter Oil Co. No. 1 Tennery, SW SE SW Section 31-9n-4e, Benoist sand at 1,637-52 feet, total depth 1,566 feet, pumped 2 bbls. of oil and 28 bbls. of water and was abandoned as a dry hole.

In Wabash County, Adams Corner Oil Co. No. 1 Leek, SW NW NE Section 22-1n-12w, hole full of water at 1,635-38 feet, total depth, abandoned.

In Lawrence County, Hoffman and others No. 1 Jennings, SW NW NW Section 2-4n-13w, dry and abandoned at 2,000 feet, McClosky lime at 1,842-48 feet.

### Wildcat Progress

In Lawrence County, C. E. Forman No. 1 W. H. Thompson, 230 feet from south and 500 feet from west lines NW quarter Section 22-2n-12w, sand 977-1,006 feet, total depth 1,074 feet, shut down for orders. Rockstead No. 1 Ulrich, SE SW NE Section 20-3n-13w, drilling at 545 feet. Leathers No. 1 Yonaka, NW SE SW Section 22-2n-14w. Drilling at 125 feet. Strine, Hanke and others No. 1 Carrie, machine.

Swords and others No. 1 Ohlman, SW NW NW Section 10-10n-1w, Montgomery County, drilling at 1,125 feet.

In Shelby County, Frank Frederick and others No. 1 Fluge, near C W half NE NW Section 34-10n-5e, machine on ground. Prunty Production Co. No. 1 Hickey, C SE SW SW Section 34-12n-4e, total depth 425 feet. Shut down for repairs.

In Edgar County, A. M. Myers No. 1 Brinkerhoff, C SE SE Section 26-13n-13w, drilling at 1,210 feet. McNamara Construction Co. No. 1 Blair, NW NE NW Section 24-14n-14w, total depth 448 feet, good oil showing, will swab.

In Morgan County, Alexander Oil Co. No. 1 Gray, 800 feet from west and 1,050 feet from south lines Section 25-15n-9w, drilling at 1,415 feet.

In Champaign County, Barber & Selver No. 1 Lindsey, C NW SE Section 20-20n-8e, shut down at 430 feet.

In Platt County, Max Pray No. 1 Baker, SW SE NE Section 17-18n-6e, drilling at 2,905 feet.

In Menard County, Arthur Scroggins No. 1 fee, C SW SW Section 24-19n-5w, Schlumberger test, pay at 1,465-87 feet and 1,502-26 feet, pulled 5-inch casing. Drilling at 1,543 feet.

In Wayne County, H. H. Weinert No. 1 Sprague, C N half NW SE Section 4-2s-7e, coring at 3,181 feet.

In Franklin County, Eason Oil Co. No. 1 Orient Mine, in Section 36-6s-2e, Fredonia at 2,906 feet, drilling at 3,052 feet.

In Jefferson County, Doctor Moore No. 1 Moore, SE NE NW Section 16-3s-5e, total depth 2,110 feet, two joints of casing in the hole. Shut down. Benedum-Trees, Inc., No. 1 Jefferson Oil & Gas Co., C NW NE Section 16-4s-2e, total depth 2,958 feet. Perforated casing at 2,730-53 feet, bailing wash water.

In Randolph County, Arnes Drilling Co. No. 1 Nicholson, NW SE NW Section 12-5s-9w, shut down at 510 feet. Badger Oil Co. No. 1 Schroeder, SE NW NW Section 27-6s-6w, drilling at 950 feet.

In Edwards County, Leach Brothers No. 1 Lee, SW NE SE Section 11-1s-10e, drilling at 3,590 feet.

In Schuyler County, Fell Oil Trust No. 1 Thomas, 600 feet from north and 400 feet from west line SW SW Section 15-1s-2w of fifth principal meridian, showing of oil at 405-07 feet. Total depth 442 feet. Shut down.

In Jefferson County, J. Garfield Buell No. 1 Pitchford, SW SW NW Section 2-2s-1e, set 10-inch casing at 54 feet.

In Clinton County, Watkins & Wright No. 1 Wise, 75 feet from north and 600 feet from west lines, SE quarter Section 24-1n-3w, was shut down at 1,360 feet. Farrelly and others No. 1 Berginan, NW SW NW Section 30-1n-3w, was shut down at 1,345 feet with 1,200 feet of water in the hole. Ste. Genevieve lime had been topped at 1,263 feet and there was a show of oil with a lot of water at 1,330-33 feet. Noel Kemper & Murphy No. 1 Mikile, SE cor. NE Section 11-3n-3w, and Carlyle Development Co. No. 1 Bott, C NW SW SW Section 17-2n-2w, were shut down after spudding.

In St. Clair County, Martin and others No. 1 Rensing, SW SE NE Section 3-1n-5w, was drilling in a hole full of water at 1,240 feet.

In Marion County, Kiskadden No. 1 Johnson, NE NW NE Section 32-1n-1e, was drilling at 750 feet. Tom Boyce No. 1 Stover, NE NE SW Section 30-1n-2e, was drilling at 920 feet. W. S. Tatum No. 1 Bockman Brothers, C NE NE Section 5-2n-2e, was drilling at 1,642 feet. Tar Springs sand was topped at 1,576 feet. Nash Redwine No. 1 Pruden, SW SW NW Section 10-2n-2e, ran a Schlumberger test at 1,913 feet and was shut down at 1,974 feet waiting for materials. Coyer No. 1 Mulvaney, SE NE SE Section 6-2n-4e, was drilling in shale at 1,938 feet. Conrey & Griffin No. 1 Bilek, NW NW NE Section 26-4n-2e, drilling at 865 feet.

In Bond County, W. I. Cole and others No. 2 J. L. Williams, 270 feet from north and 200 feet from west line. SE SE Section 6-4n-4w, spudded. Lindsey Brothers and others No. 1 Butter, NE NE SW Section 31-4n-2w, had Glen Dean lime at 840 feet and was drilling at 945 feet.

In Fayette County, Lindsey and others No. 1 Bowers, SW NE SE Section 36-4n-1w, rigging up standard tools. W. C. Stevenson No. 1 Harkless, C NE SE NE Section 30-5n-1e, a location. Hurricane Creek Oil Co. No. 1 Eddie Eckard, C NW NE Section 15-6n-1w, drilling at 1,390 feet. Putnam and others No. 1 Farmer, C SE SE Section 35-6n-1w, running 6-inch casing to 1,160 feet. Jarvis Brothers No. 1 Walnut Grove School, SW cor. SW Section 5-6n-3e, building rotary rig. Ruwalt & Johnson No. 1 Maritz, 320 feet from north and 1,305 feet from E lines, NE quarter Section 28-7n-3e, waiting for materials, total depth 1,612 feet. Producers Oil Co. No. 1 Farthing, NE NE NE Section 30-9n-1e, spudded. Continental Oil Co. No. 1 Bartlett, NE NW NE Section 30-9n-1e, spudded. Elrich and others No. 1 Durbin, C NW NW SW Section 30-9n-3e, rigging up rotary. Kingwood Oil Co. No. 1 William Vogel, SE NE NW Section

## CENTRAL OHIO

LIMA, Ohio, Oct. 24.—An oil well with an initial production of 50 bbls. the first 24 hours after shot, was completed by Shear and others on the Waterfront tract of the New York Central R.R. Co., in the city of Cleveland, Cuyahoga County. Production was found in Clinton sand at 2,695-2,733 feet. The well is about 1 mile west of the public square in downtown Cleveland, on the west point where the Cuyahoga River enters Lake Erie.

Meigs County has the best gas completion of the week. In Salisbury Township, Harry Smith No. 1 Martha Hysell, Section 33, has 1,500,000 feet open flow in the salt sand at 871 feet.

In Athens County, Ames Township, D. T. Orndoff No. 1 J. B. Keirns, Section 29, is a small gas well in the second Berea sand at 1,562 feet. In Carthage Township, C. W. Nuzum No. 2 J. A. Kinnen, Section 34, made 250,000 feet of gas in Salt sand at 1,069 feet. In Lodi Township, Williams Brothers No. 1 W. C. Snodgrass, Section 5, made 2 bbls. of oil and 100,000 feet of gas from the second Berea sand at 1,746 feet.

In Coshocton County, Monroe Township, Bell Brothers No. 1 Elsworth McKelvey, Section 10, was dry at 899 feet.

In Guernsey County, Millwood Township, Chaseville Oil Co. No. 1 Ernest Anderson, Section 2, is a small gas well at 1,562 feet. In Washington Township, Jones & Jewell No. 2 T. M. Grimsley, Section 13, is good for 350,000 feet of gas from Berea sand at 1,280 feet.

In Hocking County, Ward Township, Preston Oil Co. No. 165 Sunday Creek Coal Co., Section 23, made 5 bbls. of oil naturally from the Clinton sand at 3,462 feet. The well will not be shot until proration is lifted.

In Licking County, Mary Ann Township, Hoover Brothers No. 1 R. S. Reidenour, Lot 9, fourth quarter, made 12 bbls. of oil the first day after shot from the Berea sand at 618 feet. In the same township, Vandergrift Oil Co. No. 1 John Hughes, Lot 5, fourth quarter, pumped 11 bbls. of oil the first 24 hours after shot in the Berea at 786 feet.

In Richland County, Mifflin Township, Harmon & George No. 1 Mary Koogle, Section 22, was abandoned at 2,556 feet. No Clinton sand was found.

In Stark County, Plain Township, East Ohio Gas Co. No. 1 Della Van Voorhis, Section 14, is good for 800,000 feet of gas from the Clinton sand at 4,648-56 feet.

In Washington County, Liberty Township, Best Run Oil & Gas Co. No. 1 Jane Mull Heirs, Section 21, was a small gas well at 1,160 feet.

### Lima Field

No wells were completed in northwestern Ohio. Two new tests have been started. The Sun Oil Co. is rigging up to drill a Green sand test on the Junior Order of United American Mechanics tract in Seneca County, Clinton Township, Section 17.

In Wood County, Portage Township, Goodwill Oil & Gas Co. are rigged up to drill a Trenton test on the Lester Shinew farm in Section 5.

In Hancock County, Washington Township, Travelers Oil Co. have replaced the leaky casing in their No. 1 Jacob McCrawley and are drilling around 300 feet in the Trenton.

## EASTERN KENTUCKY

ASHLAND, Ky., Oct. 22.—Two small and one good oil well are included in the week's report of field operations in Eastern Kentucky. One dry hole is included in the report, and one operation testing for gas. This is the Kentucky-West Virginia Gas Co. No. 574 on John and Benjamin Sellards farm on Levisa Fork in Floyd County at a total depth of 1,026 feet.

Floyd Fitch completed No. 1 Ivahue Heirs, on Ross Creek, with a flow of 3 bbls. of oil daily.

Burnett & Pruitt completed No. 8 Day Timber & Coal Co. land on Tug Fork of Walkers Creek with a daily production of 20 bbls. of oil.

E. A. Wireman completed No. 11 Kinser Heirs No. 1,

on South Fork, in the South Fork district of Powell County, starting at 3 bbls. of oil daily.

Kentucky-West Virginia Gas Co. drilled a dry hole in No. 576, Julia Ward land, on Toms Creek of Levisa Fork, in Floyd County. The well reached a total depth of 2,812 feet, in red rock, and is being plugged.

In Powell County Caldwell & Crabtree are down 600 feet in No. 2 Lula Law at Pilot. Hall & Ogle passed the 200-foot mark in No. 1 George Booth at Pilot. Joe T. Brown, treasurer, was drilling at 300 feet in No. 4 Lowery Heirs in the same vicinity.

In Lawrence County Ashland Oil & Refining Co. was drilling at 145 feet in No. 1 D. W. Skaggs on Laurel Creek in the Martha district.

In Floyd County the Kentucky-West Virginia Gas Co. was drilling at 1,100 feet in No. 577 Jennie Caldwell, on Toms Creek, and was rigging up No. 578 on the Sherwood Osborn land nearby.

In Martin County Kentucky-West Virginia Gas Co. is drilling by tools in No. 5191, W. P. Crum land, in the Coldwater area, and is down 1,841 feet in Alie Ward No. 5246 on Coldwater Fork and pushing operations in No. 5247 C. W. Preece land, on Coldwater Fork. Kentucky-West Virginia Gas Co. is drilling at 1,375 feet in sand in No. 5248 John Salyers in same vicinity.

In Knott County the Inland Gas Corp. is drilling at 3,144 feet in No. 33 Virginia-Kentucky Coal Co. land at Quicksand. The same firm is building derrick for No. 203 Curtis Pigman on Right Fork of Troublesome Creek and is down 34 feet in slate in No. 205 Kentucky-West Virginia Gas Co. on Trace Fork of Troublesome Creek.

## Gulf Coast Fields

*(Continued from Page 205)*

### Matagorda County

McCrosky field: Pierce Estate No. 5 fee, 6,645 feet, abandoned.

### Orange County

Orange field: General Petroleum Corp. No. 2 State, perforated casing 6,005-15 feet, 120 bbls., quarter-inch choke.

### Polk County

Segno field: Humble Oil & Refining Co. No. 9-B Kirby Lumber Co., 8,100 feet, 108 bbls., quarter-inch choke.

### Waller County

Katy field: Stanolind Oil & Gas Co. No. 1 Robertson, perforated casing 7,315-25 feet, 41,000,000 feet of gas.

## La.-Ark. Fields

*(Continued from Page 203)*

production in the Pettit is concerned. The test cored the top of the Pettit at 5,674 feet and found no porosity. The Travis Peak was topped at 5,957 feet, and operators are drilling in shale and sand below 5,990 feet.

### De Soto Prospect

A De Soto Parish wildcat, S. S. Alexander's No. 1-A Stoll, located in Section 5-12-16, this week had another show. The test topped the Washita at 2,710 feet and a string of 7-inch casing was set at 2,705 feet. After acidizing with 3,000 gallons at 2,761 feet, total depth, the well tested an estimated 2,000,000 feet of gas with a rock pressure of 400 pounds. Operators are testing the well at the present time.

### Arkansas Wells

Arkansas was not without its important gas distillate wells during the week. In the Village field of Columbia County a surprise completion of a good gasser, also producing a high-gravity distillate improved the outlook for the field. Standard Oil Co. of Louisiana No. 1 T. Crumpler, SE SW NW Section 15-17-19, came in making 4,000,000 feet of gas and 190 bbls. of 61.7 gravity distillate per day through a five-sixteenths inch choke. Casing pressure was 2,600 pounds, and tubing pressure 2,450 pounds.

No. 1 Crumpler had been in the reworking stage for several weeks. Located in a west offset position to the discovery well, and one location north of a second oil producer, the well had given trouble in testing salt water with oil in the field horizon. Bottomed at 7,500 feet, the hole was plugged back, and then drilled out to 7,396 feet and perforated at 7,393-96 feet, where the gas and distillate was found. This is the first of such production in the Columbia County fields.

The Rainbow or Champagnolle field in Union County gained its second recent gasser, as J. R. Lockhart No. 1 Raulston, for several weeks shut down, was perforated at 2,968-76 feet, and completed. It had an initial production of 1,500,000 feet of gas, with rock pressure of 1,100 pounds.

# November Gasoline Estimate Almost Same As Year Ago

The daily average supply of domestic crude oil estimated by the Bureau of Mines to meet the market demand in November, 1938, is 3,391,300 bbls. This is 24,500 bbls. (1 per cent) more than the estimate for October, but 5 per cent lower than the actual demand for domestic crude in November, 1937. The decline from a year ago is due chiefly to the fact that no provision is made for an increase in gasoline stocks during November, 1938, in contrast to an actual increase of 2,587,000 bbls. in November, 1937. Fuel oil stocks will be sufficient to supply early winter needs without requiring heavy runs of crude oil and consequent excessive production of gasoline.

Daily average crude-oil production and runs to stills during the four weeks, September 3 to October 1, each averaged 3,248,000 bbls. During this period total crude stocks (including heavy crude in California) declined 4,196,000 bbls., 3,852,000 bbls. of which was in domestic grades. The daily average withdrawal from domestic grades added to the production gives 3,385,000 bbls. as the apparent daily average demand, compared with the Bureau's estimate of 3,444,300 bbls. for September. Indications point to a comparatively low demand for gasoline in September and to a delay in exports of crude oil in the last half of that month.

**ESTIMATED DAILY CRUDE OIL DEMAND BY STATES**

(As no changes in crude oil stocks are involved in these estimates, they represent demand rather than production.)

| State— | Forecast November 1938 | Forecast October 1938 | Actual demand November 1937 |
|---|---|---|---|
| Texas | 1,371,000 | 1,359,000 | 1,400,000 |
| California | 616,700 | 619,000 | 700,000 |
| Oklahoma | 515,000 | 523,600 | 614,000 |
| Louisiana | 256,300 | 248,400 | 258,000 |
| Kansas | 164,300 | 163,400 | 181,000 |
| New Mexico | 111,000 | 109,200 | 115,000 |
| Wyoming | 74,700 | 69,700 | 50,000 |
| Illinois | 64,300 | 51,900 | 28,000 |
| Arkansas | 52,300 | 54,100 | 44,000 |
| Michigan | 50,300 | 53,900 | 66,000 |
| Pennsylvania | 44,700 | 44,300 | 53,000 |
| Kentucky | 17,700 | 16,100 | 13,000 |
| New York | 13,700 | 14,300 | 15,000 |
| Montana | 13,300 | 13,800 | 13,000 |
| West Virginia | 10,300 | 10,100 | 7,000 |
| Ohio | 9,000 | 9,100 | 13,000 |
| Colorado | 4,000 | 4,300 | 3,000 |
| Indiana | 2,700 | 2,600 | 2,000 |
| | 3,391,300 | 3,366,800 | 3,575,000 |

### Motor Fuel

*Domestic demand.*—The estimate of motor fuel demand for November, 1938, is 42,700,000 bbls., almost the same as for November, 1937.

*Exports.*—The estimate of motor fuel exports, reflecting forecasts of exporters, has been lowered from 4,400,000 bbls. in October to 3,800,000 bbls. in November.

*Stocks.*—Stocks of finished and unfinished gasoline on August 31 totaled 70,962,000 bbls. According to American Petroleum Institute statistics, these stocks declined about 2,300,000 bbls. during September, bringing them to approximately 68,700,000 bbls. as of September 30. Although this is approximately 3,300,000 bbls. higher than the level of stocks on September 30, 1937, the Bureau is estimating no change for the month of November, as it is not likely that they will decrease during that month. On the other hand, there is no justification for their increasing in view of the generous supply of fuel oil now available.

*Gasoline production.*—Benzol and direct sales and losses of natural gasoline have been estimated as 800,000 bbls., making refinery production 45,700,000 bbls. This is distributed among the various districts as follows (thousands of barrels): East Coast, 6,070; Appalachian, 1,600; Indiana-Illinois, 7,930; Oklahoma, 3,090; Kansas-Missouri, 2,610; Texas Inland, 3,220; Texas Gulf Coast, 11,430; Louisiana Gulf Coast, 1,460; North Louisiana-Arkansas, 900; Rocky Mountain, 1,160; California, 6,230.

### Crude Petroleum

*Runs to stills.*—Natural-gasoline consumption at refineries in November is estimated as 8.7 per cent of the total production. The yield of straight-run and cracked gasoline is estimated as 44.0 per cent. This yield is somewhat lower than the trend of recent months as it is contemplated that the relaitvely low crude runs to stills will require a maximum distillate yield. The application of this yield to the straight-run and cracked production of 41,720,000 bbls. gives crude runs of 94,740,000 bbls., or 3,158,000 bbls. daily. Foreign crude runs are estimated as 2,100,000 bbls.

*Exports, fuel, and losses.*—The estimate for exports, which was 7,000,000 bbls. for October, has been lowered in November, in accordance with forecasts received from the largest exporters, to 6,500,000 bbls. The estimate for crude used for fuel and losses has been increased from 2,400,000 bbls. in October to 2,600,000 bbls., in anticipation of the usual seasonal change in this factor.

*Total demand.*—The total demand for domestic crude in November, 1938, as indicated by the estimates above, is 101,740,000 bbls., or 3,391,300 bbls. daily.

*Crude oil demand by states.*—The breakdown of the total estimated daily demand for domestic crude oil of 3,391,300 bbls. gives the following crude requirements by states of origin. As these requirements may be supplied either from stocks or from new production, contemplated withdrawals from crude oil stocks must be deducted from the Bureau's estimate of demand to determine the amount of new crude to be produced.

## Rocky Mountain Fields

*(Continued from Page 210)*

Chas. Grant et al No. 1 Anderson, SE NE NE Sec. 26-35n-4w. S.D. 2,109 ft.

Colonel Kevin Oil Co. No. 1 Govt., SW NE NE Sec. 27-35n-3w. Spdg. 300 ft.; (first report).

**Yellowstone County**

Signal O. & G. Co. No. 1 Stallinberger, NE NE SW Sec. 18-3n-23e. Cg. 4,590 ft.

Riverton Oil Co. No. 1 Fox, CEL NW NE Sec. 14-2n-23e. T.D. 1,795 ft.; cmtd. 8¼-in. 1,510 ft.; W.O.C.

### UTAH

**Grand County**

Cane Creek Oil Co. No. 1 Govt., NW SW Sec. 31-26n-21e. Rmg. at 1,900 ft. for 8¼-in.

Crescent Eagle Oil Co. No. 1 Brendel, SW SE Sec. 4-22s-19e. Drlg. 4,110 ft.

Columbia Crude Corp. No. 1 Rath, NW SW SE Sec. 12-25s-20e. S.D. 4,200 ft.

**Summit County**

Longwell Pet. Co. No. 1, SE SW SE Sec. 35-3n-5e. T.D. 2,876 ft.; sdtrkg.

## Output of International in Peru and Tropical in Colombia

International Petroleum Co., Ltd., produced 1,070,457 bbls. of crude oil in Peru last month increasing the year's accumulative recovery through the end of September to 9,953,975 bbls. September's production compared to yield of 1,111,339 bbls. in August and with 1,206,569 bbls. a year ago. At the end of September in 1937, the company had recovered 11,073,748 bbls. in nine months.

Tropical Oil Co., a subsidiary of International, produced 1,781,251 bbls. in Colombia last month, compared to 1,852,467 bbls. in August and to 1,617,433 bbls. in September, 1937. Accumulative recovery for nine months this year by Tropical stood at 15,710,955 bbls., compared to 14,863,506 bbls. for the same period in 1937.

# Michigan Field Report

By
O. C. PRESSPRICH

# 4,000-Barrel Well in Clare County; 13 New Producers

SAGINAW, Mich., Oct. 24.—Ten acidized wells dominated Michigan's oil picture in the past week in all fields, with only three natural producers added throughout the state.

The Freeman Township (Clare County) area continued to hold the spotlight with one of its four acidized tests showing a flow of 4,000 bbls. in 24 hours, ranking among the most prolific producers in Michigan oil history.

The Clare-Freeman-Redding pool developed one new natural producer and four acidized wells, with the five wells showing a production of 11,000 bbls. daily, of which the four acidized tests contributed 10,500 bbls. One dry hole—the first in the Clare-Freeman pool—provided a question mark for operators and pointed to possible establishment of a southwest boundary marker from discovery well. The dry hole is on the diagonal southwest 40-acre tract from the discovery well. An interesting test meriting close attention, approximately 1 mile south and 1 mile east of the Freeman discovery sector, loomed as the newest development outside proved territory. A show of oil was reported but completion is delayed by lost tools.

Southwest Michigan oil fields, Allegan and Van Buren, added a natural producer each, plus six acidized tests. Production in these fields, heavy for the past two months, slowed somewhat last week as operators withheld bringing in new wells, owing to collapse of crude prices. Three dry holes were completed in Van Buren County in an attempt to extend the pool.

Buckeye and other Gladwin County fields, as well as Midland County's Edenville pool, had no new production.

### Allegan County

Allegan Township (2n-13w)—O. & G. Co. No. 1 Godfrey, NE NW NE Section 17, failed as a commercial producer and will be abandoned.

Dorr Township (4n-12w)—Black Rock Oil Co. No. 1 Hannah, SE NE SW Section 30, acidized a small natural show to 100 bbls. daily for the lone producer in the township last week.

Heath Township (3n-14w) — One acidized producer was added immediately south of the field's discovery in Overisel, being Fortney Oil Co. No. 8 Wesseling, NW SW NE Section 1, rated at 100 bbls. daily.

Monterey Township (3n-13w) — Another southeast extension test of the Overisel field was tapped at Fortney Oil Co. No. 11 Wesseling, SW NW NW Section 6, estimated at 150 bbls. daily after acid.

Overisel Township (4n-14w)—The only natural producer in the southwest area oil fields last week was incidentally the largest of several in the sector, being Stewart Oil Co. No. 5 Oldebekking, SE SE SE Section 21, the midway pool of Overisel. The test rated 500 bbls. a day. Operators in the Section 21 pool recently signed an agreement not to sell crude at less than $1 a barrel, just prior to the drop in price of Allegan oil to 90 cents. Producers are reported abiding by the agreement.

Salem Township (4n-13w) — One acidized producer and one dry hole were the extent of activity in Salem. Crown Development Co. No. 2 George, NW NW SW Section 21, acidized a small natural producer to 100 bbls. daily, and F. W. Wildde No. 1 Boyers, NW NW SW Section 29, was a failure.

### Arenac County

Clayton Township (20n-4e)—Weber Oil Co. No. 6 Whiting, SW SW NW Section 11, failed as a commercial producer and faces abandonment.

### Clare County

Freeman Township (18n-6w)—This focal point of the oil industry in Michigan continued to develop some of the best producers in the state's history. Socony-Vacuum No. 2 Van Horn, SW NE NW Section 3, acidized a good natural producer into one of the state's largest wells, rating production in excess of 4,000 bbls. daily. Socony's No. 3 Van Horn, NE NW NW Section 3, flowed nearly 500 bbls. naturally, gauged on a 16-hour basis, and was scheduled for acid in view of the prolific showing made at the No. 2 well.

Basin Oil Co. No. 3 Van Horn, SE NE NE Section 4, a west extension, which came in with a favorable natural showing a week ago, was acidized to approximately 2,500 bbls. daily.

Most recent of the Freeman additions, which extended proved territory southeast a distance of one-half mile from the discovery, is Mammoth Producing & Refining Co. No. 1 Van Horn, NW NE SE Section 3. A natural flow of 200 bbls. daily was acidized to an estimated 2,000- to 2,500-bbl. potential, although it was necessary to pinch in the flow to 20 bbls. an hour due to lack of storage. The Mammoth well bottomed low in the Monroe at 3,909½ feet.

The first failure in the Freeman area was recorded last week at Pure Oil Co. No. 1 Drake, NE NE SE Section 4, when water filled the hole at 3,981 feet.The Pure test is located on the diagonal southwest tract from discovery well. Formations were reported regular through the Dundee, but the Monroe stratum was entirely absent. This test may block southwest extension in the area. McClanahan Oil Co. No. 1 Perkins, NE NE NE Section 15, 1 mile south and 1 mile east of discovery, spent a week fishing for lost tools, and meantime the hole was reported to have filled 1,200 feet with fluid. This test was being closely watched as an indication of extension of the pool southward.

Redding Township (19n-6w) — Freeman's northern neighbor township continued to develop producers on a par with the discovery pool, with Socony-Vacuum acidizing its No. 1 Fell to an estimated 2,500-bbl. daily flow. The test is in the SE SE SE Section 33. It was the only active test in Redding last week.

### Gladwin County

Sage Township (19n-2w)—Sun Oil Co. No. 1 Reed, SE SE SW Section 18, a wildcat and the only active test in the township, failed as a commercial producer.

### Gratiot County

Fulton Township (9n-3w)—A wildcat test of Chartiers Oil Co., No. 1 Duflo, SE SE NW Section 6, was plugged and abandoned.

### Ogemaw County

West Branch Township (22n-2) — Michigan's most northerly producing oil field added one producer this week at Weber Oil Co. No. 2 Husted, NE SW NW Section 36, gauged at 40 bbls. daily after acid.

### Otsego County

Corwith Township (32n-3w)—Failure was recorded at B. Williams' No. 1 Yuille, SE SE NE Section 9, only test in the township.

### Van Buren County

Bloomingdale Township (1s-14w) — Dry hole boundary markers began to define production limits of the new Bloomingdale field, bunching three failures, one natural producer and one acid-treated test. The natural producer was Gordon Oil Co. No. 1 Burge, NW NE NW Section 16, gauged at 400 bbls. natural. D. A. Burris' No. 1 Danes, NW NE SW Section 16, acidized a small natural showing to 100 bbls. daily. The three dry holes were scattered in all directions from proved territory. They were Leighton Oil & Gas Co. No. 1 Cooch; H. C. Nelson No. 1 Shock, NW SE NW Section 15, and T. F. Caldwell No. 1 Rath, NE NE NE Section 20.

### Play in Clare-Redding

Though the Bloomingdale area of Van Buren County still continued to take the long end of the week's drilling permits issued by the state conservation department, there were indications of an increasing play in the Freeman-Redding area of Clare County. Six permits were taken for wells in this district, two in Freeman and four in Redding, with Pure Oil Co., Socony-Vacuum Oil Co., McClanahan Oil Co. and Taggart Bros., Grand Rapids, among the operators.

Two interesting wildcat ventures were listed: Lupher Drilling Co.'s test in Empire Township, Leelanau County, far up in the northwestern part of Michigan, and Smith Petroleum Co.'s test in Wisner Township, Tuscola County.

## N. Y.-Penna. Gas Fields

COUDERSPORT, Pa., Oct. 24.—Two wells were completed in the New York-Pennsylvania Oriskany sand gas fields during the past week and both were abandoned, one as a dry hole and the other with insufficient production to make its operation economical.

G. L. Cabot, Inc., drilled through the Oriskany sand at 5,026-49 feet on the Flora Bell Joy farm, Brookfield Township, Tioga County, and got a show of 50,000 feet per day at 5,046 feet. This well was abandoned after being drilled through the sand to 5,050 feet.

New York State Natural Gas Co. completed another Woodhull Township, Steuben County, test as a dry hole. This test, on the Parks Estate No. 2 farm drilled through the Oriskany at 3,632-62 feet without finding gas and was abandoned at 3,663 feet.

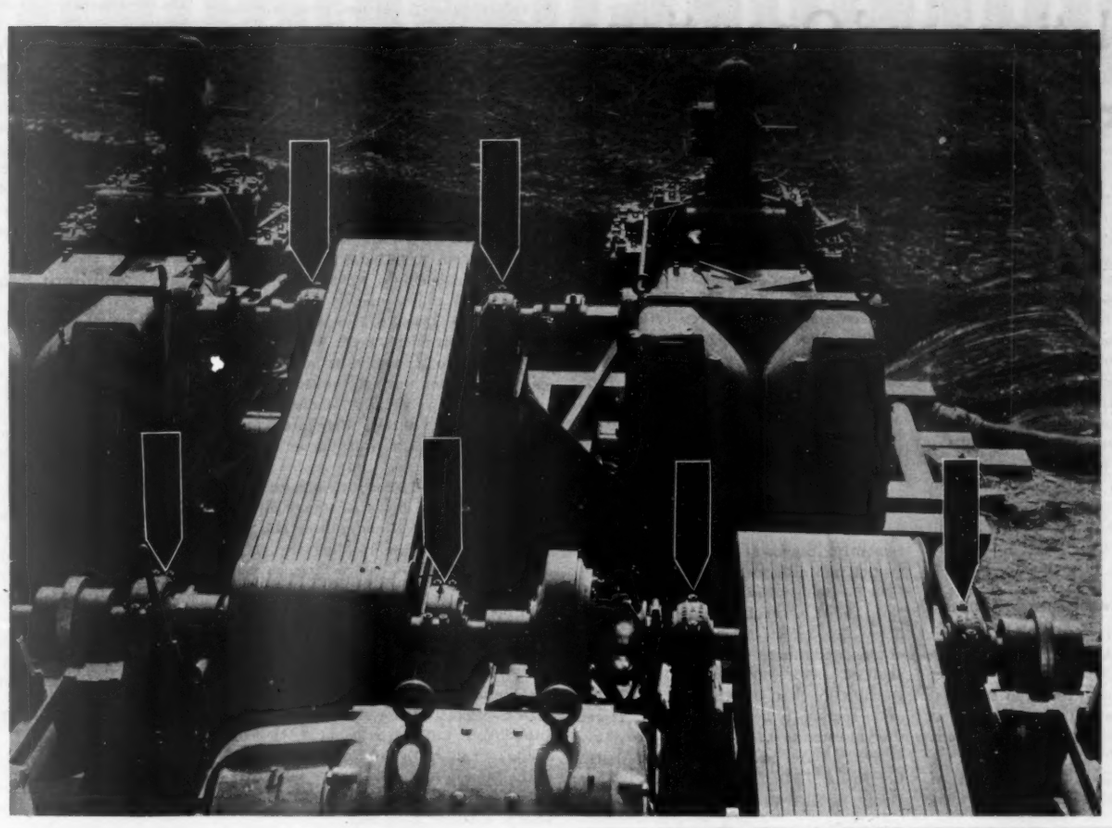
Clancey and others' test on the D. Hovey farm in Addison Township, Steuben County, encountered shows of 300,000 feet at 1,042 feet and 500,000 feet at 1,240 feet and was reported drilling at 1,710 feet. G. L. Cabot, Inc., was drilling at 2,780 feet on the Elmer Downey farm, West Union Township, New York State Natural Gas Co. is at 530 feet on the Sarah Hammon farm, Troupsburg Township.

Other Steuben County operations are in Woodhull Township, where G. L. Cabot, Inc., is drilling at 480 feet on the Charles Crane No. 1 farm, drilling out cement after running casing to 3,739 feet on the George Hotaling farm and spudding in on the Charles Crane No. 2 farm.

In Willing Township, Allegany County, Cunningham Natural Gas Co. is drilling at 4,720 feet on the William Shear farm and is shut down at 1,150 feet on the Fortner farm, Belmont Quadrangle Drilling Co. is drilling at 2,352 feet on the G. Lampe farm and Empire Producing Co. is drilling at 650 feet on the Dan Clark No. 2 farm. G. L. Cabot, Inc., is drilling at 950 feet on the Empire-Rogers farm, Alma Township, and Belmont Quadrangle Drilling Co. is rigging up on the Elwin Livermore farm in Independence Township, other Allegany operations. The only remaining New York operation is the Belmont wildcat on the E. A. Treat farm, Erin Township, Chemung County, which has run surface casing to 324 feet.

With the exception of two wildcats, one of which is shut down, all Pennsylvania operations are in Potter County. In Venango County McKenry and others are reported to be drilling at 4,879 feet, deep in the Onondaga and believed to be just above the Oriskany, on the Stellman farm, Rockland Township. Wasson and others remain shut down at 5,358 feet on the E. S. Collins farm, Howe Township, Forest County.

Four tests are under way in Bingham Township, Potter County, with G. L. Cabot, Inc., drilling at 3,950 feet on the Frank Raymond farm and spudding in on the Mary Lebar farm.



# IMMEDIATE DELIVERY ON HEAVY TRANSMISSION EQUIPMENT FOR THE ILLINOIS OIL FIELDS

V-Belt Drive and Sheaves, large diameters—V-Belts for heavy duty—Pulleys all sizes and types including Hercules—Heavy Pillow Blocks—Medart-Timken Bearings—and similar equipment especially suited to Illinois Oil Field development.

**Get Immediate Delivery From Medart** — just across the river—Phone PRospect 0874—Wire or write . . .

**THE MEDART COMPANY**
**3500 DeKalb Street • • St. Louis, Missouri**

**• SEND FOR OIL FIELD EQUIPMENT CATALOGS**

**MEDART**

# Canadian Fields

## Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Oct. 24.—Crude and naphtha deliveries from Turner Valley to the Calgary refineries in September totaled 746,026 bbls., compared with a previous high of 680,029 bbls. in August. Total deliveries for the nine months of 1938 are 4,403,199 bbls., against 2,363,743 bbls. in the entire 12 months of 1937.

In September, Imperial Oil Refineries took 25,720 bbls. of naphtha and 521,158 bbls. of crude. British American Oil Co. took 199,148 bbls. of crude. For the nine months, deliveries to Imperial amounted to 275,933 bbls. of naphtha and 2,827,601 bbls. of crude; while the British American Oil Co. took 4,727 bbls. of naphtha and 1,294,938 bbls. of crude.

### Turner Valley Completions

In Southwest Turner Valley, Brown Oil Corp. No. 5, LSD 12, Section 16-18-2w5, finished at 7,146 feet, some 479 feet in the Madison, and was given two acid treatments of 5,000 gallons. Government test is being completed, with indications of a good producer.

In Section 20-18-2w5, Consolidated Royalties No. 1, LSD 14, finished at 7,986 feet after getting the Madison at 7,545 feet. It is one of the deepest completions in Turner Valley. With natural production around 700 bbls. a day, it was acidized and is being given official test for allowable. It extends the proven field a quarter-mile west. The only deeper completion in the crude area was Royalite No. 31, LSD 6, Section 29-18-2w5, which went below 8,000 feet.

### Tests in the Lime

In Section 32-18-2w5, Davies Petroleums No. 4, LSD 10, is below 6,979 feet after getting the Madison at 6,776 feet and cementing casing at 6,784 feet. It is expected to finish in a few days.

In Section 16-18-2w5, Richwell Oil Co. No. 1, LSD 5, finished in the black lime below 7,115 feet, after getting the top of the Madison at 6,676 feet. It will be acidized before testing for allowable. Royal Canadian Oil Co. No. 2, LSD 4, same section, is below 6,842 feet. It got the Madison at 6,750 feet.

West of the proven field, Okalta Oil Co. No. 6, LSD 3, Section 30-18-2w5, is below 9,851 feet. It is more than 117 feet in the Madison, and indications of oil in the lime are reported.

### West Side Drilling

In the northwest extension, Sun Ray Oil Development Co., LSD 8, Section 13-19-3w5, is below 1,345 feet after landing 13⅜-inch casing for water shutoff at 844 feet.

In Section 5-19-2w5, West Central Turner Valley, Royalite Oil Co. No. 34, LSD 7, is in the Blairmore formation below 6,474 feet. Royalite No. 37, LSD 11, is making new hole after reaming to 1,066 feet.

In Section 6-19-2w5, East Crest Oil Co. No. 4, LSD 8, has resumed from 2,340 feet after installing rotary equipment.

In Section 32-19-2w5, National Petroleum Corp. No. 3, LSD 15, is working on cellar. Royalite Oil Co. No. 36, LSD 13-14, is in the Benton formation below 2,721 feet. Vantage Oils No. 1, S half LSD 12, is deepening from 150 feet. West Turner Petroleums No. 3, LSD 6, is below 7,083 feet after drilling through the Home sand, and expected to get the Madison limestone around 7,340 feet. British Colonial Oils No. 1, LSD 5, is working on casing around 1,400 feet.

In Section 29-18-2w5, Command Oils No. 1, LSD 14, is in the Kootenay formation below 6,951 feet and getting close to the limestone. Lease Holdings No. 1 P. & H. Alco, LSD 13, is working on casing at 900 feet.

In Section 20-18-2w5, Producers Crude Corp. No. 1, LSD 11, is in the Blairmore formation below 6,834 feet. York Oils No. 2, LSD 6, is working on cellar, to spud with rotary early in November.

In Section 17-18-2w5, Extension Royalties No. 1, LSD 14, is below 5,119 feet. Anglo-Canadian Oil Co. No. 3, LSD 10, is in the Benton formation below 4,640 feet.

In Section 16-18-2w5, Okalta Oils No. 8, LSD 6, is below 2,130 feet.

In Section 18-18-2w5, Inland Development Co. No. 1, LSD 16, is working on cellar, and has let contract for rotary test, to spud early in November.

In Section 9-18-2w5, D. & D. Oils No. 1, LSD 12, is in the Benton formation below 3,646 feet. George Harris and associates No. 1, LSD 13, is working on cellar. Derrick is being moved to lease, and rotary outfit from Royal Canadian No. 2 will be used.

West of the proven field, Scottish Petroleums No. 1, LSD 16, Section 19-18-2w5, is preparing to resume after cementing 13⅜-inch casing around 1,000 feet. Anglo-Canadian Oil Co. No. 1, LSD 16, Section 31-18-2w5, is below 7,786 feet and apparently on top of the Madison limestone, proving the formation a half mile west of the nearest producer.

### North Turner Valley

In North Turner Valley, Royalite Oil Co. No. 35, LSD 7, Section 27-20-3w5, is in the Blairmore formation below 3,954 feet, and seems to be logging high.

Home Oil Co. No. 2 Millarville, LSD 6, Section 33-20-3w5, is in the Kootenay formation below 7,347 feet, and expected to get the lime in about a week.

### East Side Drilling

On the Calling Valley structure east of Turner Valley, Sentinel Oil Co. No. 1, LSD 15, Section 8-20-2w5, is below 7,040 feet after encountering some small oil shows.

### Northern Foothills

In the Pouce Coupe area west of Peace River, Guardian Oil Co. No. 1, Section 7-80-12w6, has a fishing job at 2,360 feet.

On the Ram River structure west of Rocky Mountain House, Ram River Oils No. 1, Township 38-12w5, is rigged ready to spud. Drilling will start in the Devonian limestone, with prospects for production at shallow depth.

On the Clearwater structure, Altoba No. 1, Section 31-34-9w5, diamond drill test, bottomed in the Devonian limestone at 350 feet, is reaming for 3-inch casing.

On the Bearberry structure, Petroleum Structures No. 1, LSD 4, Section 2-33-7w5, is in the Benton formation below 4,864 feet after encountering several good shows of gas.

On the Moose dome, Moose Oils No. 2, LSD 8, Section 29-22-6w5, stopped drilling at 1,605 feet for a bailing test of a second oil sand encountered at 1,585 feet, bringing up 170 bbls. of 48-gravity crude in 10 hours. After bailing about 400 bbls., drilling was resumed, and is below 1,620 feet.

### Southern Foothills

On the Highwood-Sinclair structure, southwest of Turner Valley, Green Valley Oils No. 1 Banner, LSD 6, Section 34-17-3w5, bottoming around 6,310 feet, developed crooked hole, and redrilled about 50 feet. Test shows additional gas and somewhat lighter crude. It is about 950 feet in the Madison. J. & J. Syndicate No. 1, LSD 9, Section 12-16-3w5, west of the old Christie well, is working on derrick.

On the Watson structure, Mar Jon Oil Co. No. 3, LSD 3, Section 4-10-2w5, is below 5,870 feet and planning to drill into the Madison limestone if commercial production is not encountered in the upper formations.

In the Savannah Creek area, Anglo-Canadian Oil Co. is constructing road to haul drilling equipment to location.

### Grease Creek Test

In the Grease Creek area, 45 miles northwest of Calgary, Frank M. McMahon and associates of Vancouver, in conjunction with Grease Creek Petroleums, Ltd., will drill a cable tool test to around 4,000 feet. Contract has been let for 9 miles of road to location, and contract for hauling equipment has been let to Sam J. Rosell of Little Chicago. The road will run north from the present Grand Valley road, crossing the Little Red River. The Grease Creek company holds 9,860 acres on structure. The only other large holder of acreage is Imperial Oil, Ltd., which some years ago made a tentative location on Harold Creek. Favorable geological reports have been made on the area.

### Taber Field

In the Taber field, southern Alberta, North Taber Royalties No. 1, LSD 7, Section 10-11-15w4, is preparing to resume after setting 8-inch casing at 1,950 feet.

Plains Petroleum Corp. No. 4, LSD 15, Section 25-9-17w4, has abandoned test for production in the upper horizon for the time being and will deepen for a test of the Madison limestone.

Border Petroleums No. 1, LSD 5, Section 32-19-17w4, bottoming at 2,550 feet, is strengthening derrick preparatory to running casing.

W. J. Fortune of Bow Island, drilling for water on the Lyman Bullock farm 3 miles west of Barnwell, encountered a heavy gas flow at 770 feet, after deepening from a water sand at 640 feet. The gas will be utilized locally.

Noble Drilling Co. of Vancouver, British Columbia, is preparing to drill its No. 1 test in LSD 10, Section 33-8-17w4, southwest of Plains Petroleum No. 2 producer. The company holds 160 acres and test is privately financed. Cable tools will be used and production is expected between 3,200 and 3,400 feet. Harland Petroleum, Ltd., has a 2 per cent royalty. Officers of the Noble Drilling Co. are: President, Thomas J. Noble; managing director,

*(Continued on Page 226)*


*It's a Toss Up!*

**WHICH IS ST. LOUIS' BEST HOTEL**

You'll enjoy your stay in St. Louis *more* in either of these two outstanding hotels... both in the heart of downtown. Spacious rooms, private bath, radio and garage service. Fine food and drink famous from coast to coast.

**Over 50% of All Rooms Rent for $3.50 or Less, Single; $5.00 or Less, Double.**

# WILDCAT OPERATIONS

## CALIFORNIA

### IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

| Company, well, location and county— | S.T.R. | Depth | Status |
|---|---|---|---|
| Hancock-Bush, No. 4 Bradley, Santa Maria, S. Barb. | 26-10-34 | 3,384 | sd. sh. drlg. |
| Union Oil, No. 12 Coast, Santa Maria, S. Barb. | 26- 9-34 | 3,541 | sd. sh. drlg. |
| O'Donnell, J. E., No. 1 Helen, Lompoc, S. Barb. | 8- 7-33 | 4,976 | sd. sh. drlg. |
| Barnsdall Oil, No. 1 Pezzoni, Gato Ridge, S. Barb. | 15- 8-32 | 3,905 | br. sh. drlg. |
| Continental Oil, No. 2 Laguna, Zaca Creek, S. Barb. | 25- 8-31 | 2,397 | sd. sh. drlg. |
| General Pet., No. 1 Laguna, Los Alamos, S. Barb. | 6- 7-30 | 2,080 | sd. sh. drlg. |
| Oceanic Oil, No. 1 Lowe, S. Barb. Mesa, S. Barb. | 28- 4-27 | 1,963 | cmtd. 1,750 |
| Ventura Drlg., No. 1, Ojai, Ventura | 10- 3-23 | 910 | sd. sh. drlg. |
| High Mesa Oil, No. 1 Butcher, Ojai, Ventura | 16- 4-22 | 1,801 | sd. sh. drlg. |
| Ciaran Oil, No. 1 Hardison, Sespe, Ventura | 22- 4-20 | 405 | cleaning out |
| Merchants Pet., No. 1, Sespe, Ventura | 1- 4-20 | 1,298 | sd. sh. drlg. |
| St. Louis Oil, No. 1 Williamson, Sespe, Ventura | 1- 4-20 | 808 | sd. sh. drlg. |
| Section 20 Oil, No. 1 Sespe, Ventura | 20- 5-19 | 2,300 | sd. sh. drlg. |
| McKinnis, C. R., No. 1, Hopper Canyon, Ventura | 14- 4-19 | 1,090 | idle |
| Texas Co., No. 135 Shiells, Shiells Canyon, Ventura | 4- 3-19 | 3,855 | O. S. drlg. |
| Ridge Oil, No. 1 Fox, Padre Canyon, Ventura | 9- 3-24 | 6,498 | gr. sd. drlg. |
| C. C. M. Oil, No. 7 Oakgrove, Padre Canyon, Ventura | 23- 3-24 | 7,080 | O. S. drlg. |
| C. C. M. Oil, No. 23-B Hobson, Rincon, Ventura | 8- 3-24 | 3,935 | O. S. drlg. |
| General Pet., No. 3 Tomson, Rincon, Ventura | 8- 3-24 | 3,453 | redrlg. 3,360 |
| Richfield Oil, No. 5-F State, Rincon, Ventura | 17- 3-24 | 3,756 | tested wet |
| Tide Water A. O., No. 36 V.L.W., Ventura Ave., Vent. | 25- 3-23 | 4,951 | sd. sh. drlg. |
| Tide Water A. O., No. 77 Lloyd, Ventura Ave., Vent. | 27- 3-23 | 5,117 | rigged up |
| Tide Water A. O., No. 111 Lloyd, Ventura Ave., Vent. | 27- 3-23 | 10,258 | recmtd. 9,981 |
| Tide Water A. O., No. 126 Lloyd, Ventura Ave., Vent. | 27- 3-23 | 5,800 | sd. sh. drlg. |
| Tide Water A. O., No. 128 Lloyd, Ventura Ave., Vent. | 27- 3-23 | 2,680 | sd. sh. drlg. |
| Tide Water A. O., No. 7 Hartman, Ventura Ave., Vent. | 22- 3-23 | 9,550 | sd. sh. drlg. |
| Tide Water A. O., No. 11 McGonigle, Vent. Ave., Vent. | 23- 3-23 | 11,935 | O. S. drlg. |
| Shell Oil, No. 96 Taylor, Ventura Ave., Ventura | 28- 3-23 | 8,930 | O. S. drlg. |
| Shell Oil, No. 30 Edison, Ventura Ave., Ventura | 20- 3-23 | 7,630 | P. B. 7,520 |
| Shell Oil, No. 32 Edison, Ventura Ave., Ventura | 20- 3-23 | 2,040 | sd. sh. drlg. |
| General Pet., No. 16 Barnard, Ventura Ave., Ventura | 21- 3-23 | 5,449 | cleaning out |
| Lloyd Corp., No. 2 Dabney-Lloyd, Ventura Ave., Vent. | 23- 3-23 | 6,715 | O. S. drlg. |
| Gibson Oil, No. 3 Alferitz, Devils Den, Kern | 14-25-18 | 1,240 | gr. sh. drlg. |
| Franco-Western Oil, No. 16, McKittrick, Kern | 8-30-22 | 2,540 | sd. sh. drlg. |
| Cal. Lands, Inc., No. 1 Occidental, Lost Hills, Kern | 24-26-20 | 6,894 | gr. sd. drlg. |
| Belridge Oil, No. 27-4, North Belridge, Kern | 27-27-20 | 5,381 | sd. sh. drlg. |
| Belridge Oil, No. 27-13, North Belridge, Kern | 27-27-20 | 8,465 | O. S. drlg. |
| Belridge Oil, No. 27-19, North Belridge, Kern | 27-27-20 | 7,191 | br. sh. drlg. |
| Belridge Oil, No. 27-31, North Belridge, Kern | 27-27-20 | 7,482 | br. sh. drlg. |
| Tide Water A. O., No. 22-3, North Belridge, Kern | 22-27-20 | 8,198 | hd. sh. drlg. |
| Tide Water A. O., No. 22, North Belridge, Kern | 21-27-20 | 6,293 | hd. sh. drlg. |
| Crestmont Oil, No. 5 Staley, Round Mountain, Kern | 8-28-29 | 1,605 | pump 180 b.d. |
| Shell Oil, No. 4 Olcese, Round Mountain, Kern | 21-28-29 | 1,689 | cleaning out |
| Green Bay, No. 1 Conry, Round Mountain, Kern | 30-28-29 | 2,368 | gr. sd. drlg. |
| Grizzly Bear Oil, No. 1 Kelly, Round Mountain, Kern | 6-28-29 | 1,655 | P.B. 1,645 |
| Fuhrman, A., No. 13 Kernco, Kern River, Kern | 28-28-28 | 542 | O.S. drlg. |
| Reid, E. O., No. 1 Kernco, Kern River, Kern | 34-28-28 | 396 | idle |
| Helm & Smith, No. 9-A Kernco, Kern River, Kern | 34-28-28 | 675 | pump 18 b.d. |
| Framac Oil, No. 3 Brown, Mount Poso, Kern | 22-27-27 | 1,351 | cleaning out |
| Union Oil, No. 13 Tribe, Mount Poso, Kern | 28-27-28 | 1,900 | pump 180 b.d. |
| Tarr & McComb, No. 1 T. & M., Mount Poso, Kern | 26-26-28 | 1,098 | sd. sh. drlg. |
| Richfield Oil, No. 1, Union Avenue, Kern | 5-30-28 | 6,940 | sd. sh. drlg. |
| Wood-Callahan Oil, No. 3 Comm., Edison, Kern | 21-30-29 | 938 | sd. sh. drlg. |
| Johnson, G. W., No. 1 East Edison, Kern | 33-29-30 | 1,298 | hd. sh. drlg. |
| Western Gulf Oil, No. 39-B, KCL, Fruitvale, Kern | 14-29-27 | 3,986 | pump 281 b.d. |
| Meridian Oil Co., No. 5 Fee, Fruitvale, Kern | 23-29-27 | 3,670 | pump 65 b.d. |
| Texas Co., No. 1 Lowe, Fruitvale, Kern | 7-29-27 | 10,122 | redrlg. 8,625 |
| Greer, P. H., No. 2 Perrel, Mountain View, Kern | 9-31-29 | 6,325 | fish D.P. |
| Hogan Pet., No. 10 Wharton, Mountain View, Kern | 32-30-29 | 4,496 | sd. sh. drlg. |
| Renner, G. E., No. 2 R.H.L., Sivert, Kern | 27-30-30 | 1,802 | idle |
| Continental Oil, No. 3-A, KCL, Wasco, Kern | 8-27-24 | 13,644 | tested wet |
| Continental Oil, No. 1, KCL, Seaboard, Wasco, Kern | 26-27-24 | 13,064 | well P.B |
| Standard Oil, No. 8-1-B, KCL, Wasco, Kern | 17-27-24 | 13,095 | sd. sh. drlg. |
| Standard Oil, No. 1 Mushrush, Wasco, Kern | 7-27-24 | 12,998 | sd. sh. drlg. |
| Cal. Lands, Inc., No. 1 Salisbury, Buttonwillow, Kern | 7-29-24 | 5,301 | idle |
| Superior Oil, No. 2 Ruhl, Rio Bravo, Kern | 1-29-25 | 11,485 | flow 1,200 b.d. |
| Superior Oil, No. 3 Ruhl, Rio Bravo, Kern | 1-29-25 | 9,451 | sd. sh. drlg. |
| Union Oil, No. 2-34, KCL, Rio Bravo, Kern | 34-28-25 | 11,208 | cmtd. 7-inch |
| Union Oil, No. 5-34, KCL, Rio Bravo, Kern | 34-28-25 | 11,417 | O.S. drlg. |
| Union Oil, No. 6-34, KCL, Rio Bravo, Kern | 34-28-25 | 10,312 | sd. sh. drlg. |
| Getty Oil, No. 3 Ramsey, Rio Bravo, Kern | 35-28-25 | 10,241 | sd. sh. drlg. |
| General Pet., No. 3 Wagoner, Rio Bravo, Kern | 35-28-25 | 3,385 | sd. sh. drlg. |
| General Pet., No. 4 Van Ness, Rio Bravo, Kern | 2-29-25 | 9,864 | sd. sh. drlg. |
| Shell Oil, No. 58-8-A, KCL, Famosa, Kern | 8-27-26 | 4,997 | sd. sh. drlg. |
| Standard Oil, No. 2 Fleishauer, Greeley, Kern | 20-29-26 | 11,532 | sd. sh. drlg. |
| Standard Oil, No. 11-16, KCL, Greeley, Kern | 20-29-26 | 4,876 | sd. sh. drlg. |
| Standard Oil, No. 1 Elrich, Greeley, Kern | 20-29-26 | 7,697 | sd. sh. drlg. |
| Superior Oil, No. 1 Krause, Greeley, Kern | 21-29-26 | 12,132 | gr. sd. drlg. |
| Continental Oil, No. 1-E, KCL, Stevens, Kern | 17-30-26 | 8,574 | redrlg. 7,752 |
| Shell Oil, No. 83-25-A, KCL, Ten Section, Kern | 25-30-25 | 8,220 | flow 2,470 b.d. |
| Shell Oil, No. 47-20-E, KCL, Ten Section, Kern | 20-30-26 | 8,212 | O.S. drlg. |
| Shell Oil, No. 43-14-A, KCL, Canal, Kern | 14-30-25 | 8,340 | O. S. drlg |
| Shell Oil, No. 87-4-B, KCL, Canal, Kern | 4-30-25 | 8,290 | sd. sh. drlg. |
| Ohio Oil, No. 9-E, KCL, Canal, Kern | 14-30-25 | 5,561 | sd. sh. drlg. |
| Standard Oil, No. 1 Rio Bravo Fee, Canal, Kern | 12-30-25 | 7,864 | fish D.P. |
| Richfield Oil, No. 1, KCL, Tupman, Kern | 32-30-25 | 8,315 | sd. sh. drlg. |
| Ohio Oil, No. 1-F, KCL, Coles Levee, Kern | 10-31-25 | 9,096 | sd. sh. drlg. |
| Fried, Julius, No. 1 Fried, Midway-Sunset, Kern | 34-32-24 | 3,590 | sd. sh. drlg. |
| Gibson Oil, No. 3 Blanck, Midway-Sunset, Kern | 6-11-23 | 2,364 | P.B. 2,325 |
| Richfield Oil, No. 1, KCL, Wheeler Ridge, Kern | 28-11-20 | 7,777 | sd. sh. drlg. |
| Petrol Corp., No. 33-5 Reserve, Tejon Ranch, Kern | 33-11-19 | 6,130 | hd. sd. drlg. |
| Hall-Baker, No. 33-2 Reserve, Tejon Ranch, Kern | 33-11-19 | 4,518 | cleaning out |
| Pierce, Cyrus, No. 1 Shorb, Panoche, Fresno | 16-14-12 | 1,040 | idle |
| Tide Water A. O., No. 1-F, North Coalinga, Fresno | 1-19-15 | 5,804 | sd. sh. drlg. |
| Pet. Sec., No. 88-7-F, East Coalinga, Fresno | 7-20-16 | 6,560 | sd. sh. drlg. |
| Pet. Sec., No. 31-18-F, East Coalinga, Fresno | 18-20-16 | 6,097 | sd. sh. drlg. |
| Goetz, F., No. 1, East Coalinga, Fresno | 10-20-15 | 6,763 | P.B. 6,275 |
| Standard Oil, No. 82-13-Fee, East Coalinga, Fresno | 13-20-15 | 6,970 | sd. sh. drlg. |
| Texas Co., No. 19 Mohawk, East Coalinga, Fresno | 12-20-15 | 4,224 | dry; abd. |
| Tide Water A. O., No. 66 Guardian, E. Coalinga, Fres. | 12-20-15 | 7,200 | dry; abd. |
| Superior Oil, No. 1 Fee, East Coalinga, Fresno | 7-20-16 | 6,894 | sd. sh. drlg. |
| Shell Oil, No. 21 Coast Range, East Coalinga, Fresno | 17-19-15 | 2,244 | sd. sh. drlg. |
| Dauphin Dev., No. 2 Boone, Alcalde, Fresno | 30-21-14 | 3,600 | gr. sh. drlg. |
| Stuart Oil, No. 1 Alcalde, Alcalde, Fresno | 12-21-14 | 461 | sd. sh. drlg. |
| Union Oil, No. 4 King, Kettleman North, Fresno | 29-21-17 | 8,520 | cleaning out |
| Superior Oil, No. 4-H, Kettleman North, Fresno | 29-21-17 | 8,600 | redrlg. 8,525 |
| K.N.D.A., No. 27-8-Q, Kettleman North, Kings | 6-22-18 | 8,697 | hd. sd. drlg. |
| K.N.D.A., No. 58-8-Q, Kettleman North, Kings | 8-22-18 | 8,396 | hd. sd. drlg. |
| K.N.D.A., No. 36-16-Q, Kettleman North, Kings | 16-22-18 | 6,361 | br. sh. drlg. |
| K.N.D.A., No. 38-16-Q, Kettleman North, Kings | 16-22-18 | 8,140 | hd. sd. drlg. |
| K.N.D.A., No. 65-20-Q, Kettleman North, Kings | 20-22-18 | 5,425 | sd. sh. drlg. |
| K.N.D.A., No. 27-22-Q, Kettleman North, Kings | 22-22-18 | 8,670 | flow 1,340 b.d. |
| Standard Oil, No. 56-1-P, Kettleman North, Kings | 1-22-17 | 1,397 | sd. sh. drlg. |
| Standard Oil, No. 21-13-P, Kettleman North, Kings | 13-22-17 | 8,390 | sd. sh. drlg. |
| Standard Oil, No. 41-17-Q, Kettleman North, Kings | 17-22-18 | 6,898 | sd. sh. drlg. |
| Irvine, A. R., No. 1 Cloud, Tulare Basin, Kings | 11-24-20 | 2,450 | sd. sh. drlg. |
| Texas Co., No. 1 Lewis, King City, Monterey | 13-19- 5 | 3,730 | hd. sh. drlg. |
| Tannehill, L. B., No. 1 Reliz, King City, Monterey | 36-20- 8 | 502 | fish D.P. |
| Temblor Range Oil, No. 1 Temblor Range, S. L. Obis. | 22-31-22 | 3,466 | cleaning up |
| Loma Grande Oil, No. 1 Edna, San Luis Obispo | 28-31-13 | 1,497 | recmtd. 1,240 |
| Eureka Pet., No. 1 Ajax, Union, San Luis Obispo | 27-26-13 | 550 | resume work |
| Ohio Oil, No. 2 Willard, Willows, Glenn | 18-20- 2 | 2,253 | cmtd. 2,253 |
| Amerada Pet., No. 1 California Lands, Colusa, Colusa | 34-16- 1 | 7,266 | redrlg. 7,150 |
| Wilshire Oil, No. 2 Crowell, Half Moon Bay, S. Mateo | 21- 6- 5 | 1,460 | sd. sh. drlg. |
| Richfield Oil, No. 1, Potrero Hills, Solano | 10- 4- 1 | 5,000 | sd. sh. drlg. |
| Superior Oil, No. 1 Reclamation, Rio Vista, Sacra. | 7- 3- 3 | 1,453 | sd. sh. drlg. |
| Barnhart & Morrow, No. 1 Arnold, Berenda, Madera | 22-10-17 | 3,176 | dry; abd. |
| Texas Co., No. 2 Eureka, Eureka, Humboldt | 22- 3- 1 | 7,708 | redrlg. 4,880 |

### IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

| Company, well, location and county— | S.T.R. | Depth | Status |
|---|---|---|---|
| Texas Co., No. 1 Anderson, Ocean Park, Los Angeles | 9- 2-15 | 3,060 | sd. sh. drlg. |
| Allison & Oglesby, No. 1 Gerner, Torrance, L. Angeles | 23- 4-14 | 5,166 | fish bailer |
| Amron Oil, No. 1 Lomita, Torrance, Los Angeles | 23- 4-14 | 3,840 | sd. sh. drlg. |

## KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shut off O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

| | | | | |
|---|---|---|---|---|
| A. T. Oil, No. 1 fee, Torrance, Los Angeles | 23- | 4-14 | 5,122 | pump 152 b.d. |
| Coastal Counties Oil, No. 6, Torrance, Los Angeles | 23- | 4-14 | 5,106 | fish baller |
| Collier, P. V., No. 1 Smith, Torrance, Los Angeles | 23- | 4-14 | 4,195 | cmtd. whipstk. |
| Cal. Star Oil, No. 1 Whitacre, Torrance, Los Angeles | 23- | 4-14 | 5,040 | cleaning out |
| Douglas, A., No. 1 Beaudette, Torrance, Los Angeles | 23- | 4-14 | 4,950 | cleaning out |
| Elexico Oil, No. 4 Airey, Torrance, Los Angeles | 22- | 4-14 | 4,975 | flow 405 b.d. |
| Exeter Oil, No. 3 Lomita, Torrance, Los Angeles | 23- | 4-14 | 3,500 | cleaning out |
| Federated Oil, No. 1 Silver, Torrance, Los Angeles | 23- | 4-14 | 4,030 | sd. sh. drlg. |
| H. D. Oil, No. 1 Lomita, Torrance, Los Angeles | 23- | 4-14 | 3,807 | rigged up |
| Kerben Oil, No. 2 Empire, Torrance, Los Angeles | 23- | 4-14 | 4,975 | sd. sh. drlg. |
| Lancia Oil, No. 1 Seeple, Torrance, Los Angeles | 23- | 4-14 | 4,965 | flow 180 b.d. |
| Louisiana Oil, No. 1 Lord, Torrance, Los Angeles | 23 | 4-14 | 5,146 | O. S. drlg. |
| Lebow, C. H., No. 1 Ellis, Torrance, Los Angeles | 23- | 4-14 | 5,122 | flow 195 b.d. |
| Mildon Oil, No. 1 Lomita, Torrance, Los Angeles | 23- | 4-14 | 4,962 | pump 100 b.d. |
| Medill, John, No. 4 Frenger, Torrance, Los Angeles | 9- | 4-14 | 3,595 | rigged up |
| M. P. S. Oil, No. 1 Julian, Torrance, Los Angeles | 23- | 4-14 | 4,999 | pump water |
| Moon Oil, No. 1 Julian, Torrance, Los Angeles | 23- | 4-14 | 3,787 | cleaning out |
| Pacific West. Oil, No. 7 Marble, Torrance, L. Angeles | 22- | 4-14 | 4,849 | sd. sh. drlg. |
| Pettijohn, J. E., No. 1 Koala, Torrance, Los Angeles | 22- | 4-14 | 4,792 | sd. sh. drlg. |
| Rogers & Edwards, No. 1 Lomita, Torrance, L. Angl. | 23- | 4-14 | 3,796 | rigged up |
| Standard Oil, No. 1-15 Marble, Torrance, L. Angeles | 22- | 4-14 | 4,460 | sd. sh. drlg. |
| Standard Oil, No. 2-9 Marble, Torrance, L. Angeles | 22- | 4-14 | 3,981 | sd. sh. drlg. |
| Standard Oil, No. 2-10 Marble, Torrance, L. Angeles | 22- | 4-14 | 2,260 | sd. sh. drlg. |
| Star Pet., No 1 Patton, Torrance, Los Angeles | 23- | 4-14 | 5,145 | cleaning out |
| Sunny State Oil, No. 1 Bailes, Torrance, Los Angeles | 23- | 4-14 | 5,195 | sd. sh. drlg. |
| Ter Heun Oil, No. 1 Lomita, Torrance, Los Angeles | 23- | 4-14 | 4,960 | cleaning out |
| C. C. M. O., No. 18, Torrance, Los Angeles | 14- | 4-14 | 3,730 | idle |
| Bush Oil, No. 1 Torino, Harbor City, Los Angeles | 25- | 4-14 | 5,559 | gr. sd. drlg. |
| B. & G. Oil, No. 52 Hawkins, Harbor City, L. Angeles | 25- | 4-14 | 4,181 | sd. sh. drlg. |
| Bandini Pet., No. 1 Harbor, Harbor City, L. Angeles | 25- | 4-14 | 5,259 | O. S. drlg. |
| Caminol, Ltd., No. 2-12 Lomita, Harbor City, L. Angl. | 25- | 4-14 | 5,317 | flow 350 b.d. |
| Century Oil, No. 1 Howery, Harbor City, Los Angeles | 25- | 4-14 | 5,252 | O. S. drlg. |
| General Pet., No. 10 Poggi, Harbor City, Los Angeles | 25- | 4-14 | 3,997 | sd. sh. drlg. |
| Macrate, A. N., No. 1 Kupfer, Harbor City, L. Angeles | 25- | 4-14 | 5,270 | sd. sh. drlg. |
| Macrate, A. N., No. 1 Holden, Harbor City, L. Angeles | 25- | 4-14 | 1,963 | sd. sh. drlg. |
| D & B Oil, No. 2 Dawn, Harbor City, Los Angeles | 25- | 4-14 | 6,306 | sd. sh. drlg. |
| Padran Oil, No. 1 McEwen, Harbor City, Los Angeles | 25- | 4-14 | 5,304 | flow 100 b.d. |
| Richfield Oil, No. 1 Spring, Harbor City, L. Angeles | 30- | 4-13 | 5,202 | O. S. drlg. |
| Ring Oil, No. 1 Mahar, Harbor City, Los Angeles | 25- | 4-14 | 5,261 | O.S. drlg. |
| Ring Oil, No. 3 Hawkins, Harbor City, Los Angeles | 25- | 4-14 | 5,260 | flow 320 b.d. |
| Ring Oil, No. 4 Hawikns, Harbor City, Los Angeles | 25- | 4-14 | .... | location |
| Sunset Oil, No. 1 Security, Harbor City, Los Angeles | 25- | 4-14 | 3,598 | sd. sh. drlg. |
| Severns Drlg., No. 1 P.E., Harbor City, Los Angeles | 25- | 4-14 | 5,200 | O. S. drlg. |
| Sierra Trad., No. 1 Spring, Harbor City, Los Angeles | 30- | 4-13 | 5,186 | O. S. drlg. |
| Wilton Oil, No. 6 Lomita, Harbor City, Los Angeles | 25- | 4-14 | 5,300 | sd. sh. drlg. |
| West. Talc., No. 1 Pierce, Harbor City, Los Angeles | 25- | 4-14 | 4,852 | sd. sh. drlg. |
| Rolling Hills Pet., No. 1, Palos Verdes, Los Angeles | 27- | 4-14 | 5,100 | idle |
| Union Oil, No. 63 Callender, Dominguez, Los Angeles | 32- | 3-13 | 7,090 | sd. sh. drlg. |
| Union Oil, No. 64 Callender, Dominguez, Los Angeles | 33- | 3-13 | 4,501 | sd. sh. drlg. |
| Union Oil, No. 49 Helman, Dominguez, Los Angeles | 33- | 3-13 | 7,363 | P.B. 6,497 |
| Shell Oil, No. 95 Reyes, Dominguez, Los Angeles | 33- | 3-13 | 9,110 | will P.B. |
| Stabler, W., No. 2 Marland, Dominguez, Los Angeles | 3- | 4-13 | 5,745 | idle |
| Selbar Oil, No. 1 Richfield, Dominguez, Los Angeles | 3- | 4-13 | 4,395 | O. S. drlg. |
| Fairfield, F. E., No. 1 Abel, Rosecrans, Los Angeles | 19- | 3-13 | 7,399 | redrlg. 5,890 |
| Bankline Oil, No. 1 Kirby, Rosecrans, Los Angeles | 20- | 3-13 | 7,655 | redrlg. 3,650 |
| Barnsdall Oil, No. 10 Rosecrans, Rosecrans, L. Angl. | 20- | 3-13 | 6,870 | sd. sh. drlg. |
| Barnsdall Oil, No. 11 Rosecrans, Rosecrans, L. Angl. | 20- | 3-13 | 3,996 | sd. sh. drlg. |
| Union Oil, No. 26 Rosecrans, Rosecrans, Los Angeles | 19- | 3-13 | 7,700 | sd. sh. drlg. |
| Universal Cons'd., No. 6 Trust, Rosecrans, L. Angeles | 18- | 3-13 | 6,181 | sd. sh. drlg. |
| Republic Pet., No. 1 Trust, Rosecrans, Los Angeles | 18- | 3-13 | 6,780 | sd. sh. drlg. |
| Superior Oil, No. 11 Maxwell, Rosecrans, Los Angeles | 20- | 3-13 | 7,676 | sd. sh. drlg. |
| H. B. Oil, No. 1 Stevens, Rosecrans, Los Angeles | 20- | 3-13 | 7,830 | tested wet |
| Royalty Ser., No. 2 Gordon, Rosecrans, Los Angeles | 19- | 3-13 | 6,173 | sd. sh. drlg. |
| West. Gulf Oil Co., No. 1 Bagg, Rosecrans, L. Angeles | 17- | 3-13 | 4,197 | sd. sh. drlg. |
| Basin Oil, No. 2 Club, Potrero, Los Angeles | 34- | 2-14 | 5,351 | sd. sh. drlg. |
| Tide Water A. O., No. 1 Porter, San Fern., L. Angeles | 27- | 3-16 | 5,376 | O. S. drlg. |
| Barnsdall Oil, No. 4 R.S.F., Newhall, Los Angeles | 26- | 4-17 | 5,298 | sd. sh. drlg. |
| Newhall Associates, No. 4 Needham, Newhall, L. Angl. | 13- | 3-16 | 3,504 | will deepen |
| Royal Lands, No. 1 Ramona, Castaic, Los Angeles | 8- | 4-17 | 1,098 | cleaning out |
| General Pet., No. 1 Flint, Wilmington, Los Angeles | 33- | 4-13 | 5,670 | flow 190 b.d. |
| General Pet., No. 20 Harbor, Wilmington, L. Angeles | 2- | 5-13 | 4,040 | O. S. drlg. |
| General Pet., No. 29 Harbor, Wilmington, L. Angeles | 2- | 5-13 | 2,697 | sd. sh. drlg. |
| General Pet., No. 17 S.P., Wilmington, Los Angeles | 2- | 5-15 | 2,396 | sd. sh. drlg. |
| Hollywood Oil, No. 4 Baxter, Wilmington, L. Angeles | 35- | 4-13 | 3,695 | flow 580 b.d. |
| Ind. Drlg., No. 1 Vosper, Wilmington, Los Angeles | 2- | 5-13 | 3,592 | flow 1,120 b.d. |
| Michelin, J., No. 2 Comm., Wilmington, Los Angeles | 32- | 4-13 | 2,890 | O. S. drlg. |
| Pacific West. Oil, No. 1 Comm., Wilmington, L. Angl. | 35- | 4-13 | 3,167 | sd. sh. drlg. |
| Richfield Oil, No. 12-P. D., Wilmington, Los Angeles | 2- | 5-13 | 3,687 | tested wet |
| Richfield Oil, No. 13-P.D., Wilmington, Los Angeles | 2- | 5-13 | 3,670 | flow 352 b.d. |
| Richfield Oil, No. 15-P.D., Wilmington, Los Angeles | 2- | 5-13 | 3,085 | flow 340 b.d. |
| Union Pacific R. R., No. 86, Wilmington, Los Angeles | 3- | 5-13 | 2,630 | O. S. drlg. |
| Union Pacific R. R., No. 92, Wilmington, Los Angeles | 3- | 5-13 | 3,971 | sd. sh. drlg. |
| Union Pacific R. R., No. 1-A, Wilmington, Los Angl. | 34- | 4-13 | 3,174 | sd. sh. drlg. |
| Union Pacific R. R., No. 10-E, Wilmington, L. Angeles | 3- | 5-13 | 3,690 | sd. sh. drlg. |
| St. Helens Pet., No. 28 Monterey, Montebello, L. Angl. | 2- | 2-12 | 5,290 | flow 191 b.d. |
| St. Helens Pet., No. 29 Monterey, Montebello, L. Angl. | 2- | 2-12 | 5,670 | sd. sh. drlg. |
| St. Helens Pet., No. 2 Taylor, Montebello, L. Angeles | 2- | 2-12 | 5,315 | sd. sh. drlg. |
| Union Oil, No. 3 Howard, Montebello, Los Angeles | 2- | 2-12 | 4,297 | sd. sh. drlg. |
| Mon. Wesco, Inc., No. 1 Seavers, Montebello, L. Angl. | 2- | 2-12 | 6,360 | deepening |
| Pongratz Pet., No. 1 Martin, Montebello, L. Angeles | 2- | 2-12 | 5,960 | sd. sh. drlg. |
| Standard Oil, No. 3 Harvey, Montebello, Los Angeles | 2- | 2-12 | 6,395 | deepening |
| Standard Oil, No. 3 Braun, Montebello, Los Angeles | 2 | -2-12 | 6,470 | cleaning out |
| Standard Oil, No. 1 Kaufman, Montebello, L. Angeles | 2- | 2-21 | 6,282 | sd. sh. drlg. |
| McVicar & Rood, No. 1 Manz, Montebello, L. Angeles | 2- | 2-12 | 6,412 | flow 1,200 b.d. |
| Mont. Res. Oil, No. 1 M.L.&W., Montebello, L. Angeles | 2- | 2-12 | 5,486 | sd. sh. drlg. |
| Hathaway Oil, No. 1 Dore, Montebello, Los Angeles | 11- | 2-12 | 6,740 | sd. sh. drlg. |
| Herley-Kelly, Inc., No. 1 Burke, Montebello, L. Angl. | 2- | 2-12 | 6,433 | flow 910 b.d. |
| Brit-American Oil, No. 1, Pico, Los Angeles | 12- | 2-12 | 6,430 | sd. sh. drlg. |
| Caminol, Ltd., No. 2-10, North Long Beach, L. Angeles | 13- | 4-13 | 4,261 | sd. sh. drlg. |
| Johnston Drlg., No. 35, North Long Beach, Los Angl. | 13- | 4-13 | 2,080 | sd. sh. drlg. |
| Massey & Asso., No. 1 Taylor, Long Beach, L. Angeles | 19- | 4-12 | 1,897 | sd. sh. drlg. |
| Texas Co., No. 2-3 Foster, Long Beach, Los Angeles | 19- | 4-12 | 3,380 | pump 160 b.d. |
| De Soto Oil, No. 1 Signal, Long Beach, Los Angeles | 30- | 4-12 | 8,698 | sd. sh. drlg. |
| Texas Co., No. 3 Alamitos, Seal Beach, Orange | 3- | 5-12 | 5,225 | cleaning out |
| Brea Canyon Oil, No. 49 Brea, Brea Canyon, Orange | 2- | 3-10 | 1,095 | sd. sh. drlg. |
| Shell Oil, No. 20 Orange, Brea Canyon, Orange | 2- | 3-10 | 2,660 | sd. sh. drlg. |
| Battersby, J. M., No. 1 Associates, Carmenita, Orange | 21- | 3-11 | 8,332 | may deepen |
| Graham-Loftus Oil, No. 2 Perkins, E. Coyote, Orange | 13- | 3-10 | 2,660 | sd. sh. drlg. |
| Shell Oil, No. 1 Herriman, Richfield, Orange | 22- | 3- 9 | 1,520 | sd. sh. drlg. |
| Goodrich Pet., No. 1 Paige, Richfield, Orange | 28- | 3- 9 | 2,271 | sd. sh. drlg. |
| McKeon, John, No. 1 New Fields, Sun. Beach, Orange | 16- | 5-11 | 1,984 | sd. sh. drlg. |
| Southwest Expl., No. 1 State, Hunt. Beach, Orange | 10- | 6-11 | 1,780 | sd. sh. drlg. |
| Southwest Expl., No. 2 State, Hunt. Beach, Orange | 10- | 6-11 | 607 | sd. sh. drlg. |
| A. V. Oil, No. 1 Newport, Costa Mesa, Orange | 16- | 6-10 | 4,760 | sd. sh. drlg. |
| So. Counties Oil, No. 1 Serrano, San Bernardino | 22- | 2- 8 | 2,050 | sd. sh. drlg. |
| Dauphin Dev., No. 1 Irwin, Ponto, San Diego | 16-12- | 4 | 521 | sd. sh. drlg. |

# KANSAS

Week Ending October 22 (Descriptions are East unless marked otherwise)

**Barton County**

C. L. Carlock and Atlantic Ref. Co. No. 1 Demel, NE NW Sec. 30-17-13w. Drlg. 2,785 ft.
Long & Johnson No. 1 Eveleigh, SW SW NE Sec. 3-18-14w. C.O. 2,630 ft.
I. W. Murfin No. 1 Birzer, NE SW Sec. 21-19-11w. S.D. 575 ft.
J. C. Shaffer, Inc., No. 1 Addie, SW NW Sec. 28-16-14w. Drlg. 2,139 ft.

**Butler County**

Soloman & Alexander No. 1 Sawyer SW NW SW Sec. 2-28-7. S.D. 183 ft.
Stewart & Gross No. 1-A Semisch, NW SE SW Sec. 34-27-7. Drlg. 1,455 ft.

**Cowley County**

Ben Gralapp et al No. 1-A Clark, NW NW NE Sec. 11-31-3e. S.D. 3,192 ft.
Ben Gralapp and Continental No. 1 Community, NW Sec. 23-32-5. Drlg. 2,875 ft.

**Ellis County**

Cities Service No. 2 Samuelson, C NE Sec. 36-11-17w. W.O.C. at 1,156 ft.

**Ellsworth County**

Continental Oil Co. No. 1 Gray, SW SE SE Sec. 26-17-8w. Arb. 3,295 ft.; T.D. 3,310 ft.; P.B. 3,210 ft.; D.S.T. 3,190-3,215 ft.; rec. wtr.; D.&A.

**Finney County**

Atlantic Ref. Co. No. 1 Nann O.W.D.D., C SE NE Sec. 21-21-34w. O.T.D. 4,658 ft.; T.D. 4,718 ft.; pot. 604 B.O.; comp.

**Grant County**

Panhandle Eastern No. 1 Joyce, C SE Sec. 36-30-37w. Drlg. 2,523 ft.

**Greenwood County**

Z. Dunlap et al No. 1 Warren, NW NW SW Sec. 4-28-10. S.D. 2,000 ft.

**Harvey County**

Lanahan Drlg. No. 1 Lagree, SE SE Sec. 4-23-3w. T.D. 280 ft.; S.D.

**Kingman County**

Bunte Bros. No. 1 Shepard, SE SE SE Sec. 10-27-10w. T.D. 4,529 ft.; P.B. 4 086 ft.; swbg. 4 B.O.P.H.

**McPherson County**

Marylyn Oil No. 1 Dixon, NW NE NW Sec. 7-19-2w. U.R. at 2,760 ft.
Western Kans. O. & R. Co. No. 1 Union, NW NE SW Sec. 18-17-1w. C.O. at 1,682 ft.

**Marion County**

Cox & McGinnis and Saco Oil Co. No. 1 Jolliffe, C S½ SW SE Sec. 2-22-5. Drlg. 1,050 ft.
Johnson et al No. 1-A Miltz, SW SW SW Sec. 24-17-4. T.D. 2,275 ft.; S.D.

**Mead County**

Cragin, Reeuscher & Turner No. 1 Adams, NW NW SE Sec. 22-34-30w. T.D. 200 ft.; R.U.R.
Pacific Midwest Oil No. 1 Rexford, NE SE SW Sec. 8-30-29w. S.D. 1,435 ft.

**Ottawa County**

Babcock Oil No. 1 Copeman, NW NW Sec. 18-10-2w. Fsg. 2,675 ft.

**Pottawatomie County**

A. Turner No. 1 Unshide, C NE NW Sec. 32-8-9. Rng. csg. 1,275 ft.

**Pratt County**

Champlin Ref. Co. No. 1 Elliott, SW NE Sec. 26-27-14w. Fsg. 4,857 ft.

**Reno County**

H. B. Garden No. 1 Strickler, NW Sec. 17-22-6w. Drlg. 3,285 ft.

**Rice County**

Gilmac Oil Co. No. 1 Malone, SE SW NW Sec. 36-20-10w. Drlg. 2,575 ft.
Spurrier & Bruce No. 1 Cary, NE NW NW Sec. 30-18-8w. O.W.D.D.; O.T.D. 1,530 ft.; drlg. 1,600 ft.

**Rooks County**

Phillips Pet. Co. No. 1 Tanzey, C NW SW Sec. 25-8-18w. Drlg. 1,595 ft.
Producers No. 1 Ham (O.W.D.D.), SW NW Sec. 25-7-19w. O.T.D. 1,800 ft.; C.O.

**Russell County**

W. I. Southern No. 1 Sellens, SW cor. Sec. 22-15-13w. W.O.C. at 267 ft.
Western Kans. O. & R. No. 1 Schneider, NE NW Sec. 35-15-14w. S.O. 3,128-31 ft.; Arb. 3,346 ft.; cd. 3,349-52 ft.; run Schlum.
Yankey & Stearnes No. 1 Krog, NW SE NW Sec. 7-15-13w. Rng. csg. 2,200 ft.

**Sedgwick County**

D. M. Crowe No. 1 Murphy, SW SE Sec. 34-29-1w. Drlg. 2,900 ft.
Frank Hudson et al No. 1 Fulton, NE SE Sec. 35-28-1e. S.D. 2,355 ft.

**Stafford County**

Stanolind O. & G. Co. No. 1 Curtis, SE cor. Sec. 31-21-12w. Viola 3,544 ft.; Arb. 3,638 ft.; R.U.S.T. 3,640 ft.

**Sumner County**

Cameron & Spencer No. 1 Frey, NW cor. Sec. 5-30-1e. S.D. 1,040 ft.
Vickers Pet. Co. No. 1 Blue, CWL NW NW Sec. 1-33-2w. S.S.O. at 3,895 ft.; T.D. 3,950 ft.; S.D.O.

**Thomas County**

Ramsey Pet. Co. and John Mabee No. 1 Ryan, C NE SE Sec. 27-8-32w. T.D. 4,980 ft.; fsg.

**Wabaunsee County**

Fowler & Tague et al No. 1 Ave, NW SW NW Sec. 10-12-8. S.D. 300 ft.

**Woodson County**

Joe Nathan No. 1 Hassenpflug, NE NE NE Sec. 2-26-14. T.D. 1,574 ft.; H.F.W.; D.&A.
M. J. Trott No. 1 Abbott, NW NE NE Sec. 21-25-14e. Drlg. 1,325 ft.

# OKLAHOMA

Week Ending October 22

## NORTHERN OKLAHOMA

**Caddo County**

Texas Co. No. 1 Smith, C NE NW Sec. 2-5-12w. T.D. 2,556 ft.; S.D.O.

**Cleveland County**

Big Chief and Gulf No. 1 Stratiger, NW NW SW Sec. 25-9-2w. Drlg. 6,530 ft.

**Comanche County**

E. N. Eldridge No. 1 Aetna Life, SW SE SW Sec. 2-1-10w. Drlg. 1,523 ft.

**Garfield County**

Champlin Ref. Co. No. 1 Boehm, SW SW NE Sec. 4-24-8w. Viola 6,595 ft.; dolo. 6,625 ft.; 1st Wilcox 6,658 ft.; dry; 2nd Wilcox 6,690 ft.; F. 441 B.O. in 24 hrs.

**Garvin County**

H. R. Hollenbach et al No. 1 Butterly, NE NE SE Sec. 22-1n-1e. 3,218,000 ft. gas; drlg. 3,205 ft.; S.D.; repairs.

**Grady County**

Carter Oil Co. et al No. 1 Smith C-58, C SE SW Sec. 26-5-8w. Drlg. 4,340 ft.; S.O. 4,255 ft.

**Hughes County**

City of Holdenville No. 1 Fairgrounds, SE SE SE Sec. 13-7-8. S.D. at 1,200 ft.
Homer Doup et al No. 1 Bond, NE NE SW Sec. 7-7-9. S.D. 2,055 ft.
Phillips Pet. Co. No. 1 Beeker, NE NW SW Sec. 8-5-10. T.D. 6,283 ft.; P.B. 5,-639 ft.; est. 25,000,000 ft. gas.
Phillips Pet. Co. No. 1 Moulder, SE SW SW Sec. 1-6-10. Drlg. 1,847 ft.

**Jackson County**

Lippert No. 1 Howard, NE SW NW Sec. 10-3-19w; O.W.D.D. Fsg. tools 1,442 ft.

**Kay County**

Atlantic O. & R. Co. No. 1 Watson, SE SE NW Sec. 28-28-1w. T.D. 841 ft.
Louis Blosser No. 1 Rudolph, NE NE SW Sec. 27-29-1w. T.D. 3,536 ft.; S.D. for heavy tools.
Crawford No. 1 Boehl, SE SE NW Sec. 34-27-2w. T.D. 550 ft.; fsg.
E. W. Hamilton No. 1 Riddle, NW cor. Sec. 3-26-4. Drlg. 1,450 ft.; H.F.W.
Tide Water Oil Co. No. 1 Hockman, NW NW NE Sec. 19-28-1. Drlg. 3,045 ft.

**Kingfisher County**

Burton Pet. Corp. No. 1 Zerger, C SE SW Sec. 5-18-6w. S.D. at 3,510 ft.; lost cones.

**Kiowa County**

Crawford & Zelliff No. 1 Kimray, SW SW NW Sec. 36-5-18w. T.D. 305 ft.; rng. csg.
R. L. Emerson No. 1 Handcock, SE SE NE Sec. 26-6-15w. S.D. for csg. 400 ft.
Hughes & Reese No. 1 Fultz, SE SE SE Sec. 10-6-18w. T.D. 1,238 ft.; W.O.C.

**Noble County**

H. R. Hollenbach No. 1 Mathews, C SW

NW Sec. 9-20-1. Miss. 4,750 ft.; drlg. 4,925 ft.

**McClain County**

W. A. Villines No. 1 Pearson, SE SW NE Sec. 13-5-3. T.D. 3,006 ft.; S.D.O.

**Okfuskee County**

Lease Inv. Co. No. 1 fee, SE SW SE Sec. 21-13-10. T.D. 2,360 ft.; rng. csg.

**Pawnee County**

Ed Kelly No. 1 Hill, SW SW SE Sec. 1-21-5. T.D. 548 ft.; S.D.

**Payne County**

Continental Oil Co. No. 1 Donahoe, NW SW Sec. 16-18-2w. Drlg. 3,955 ft.

**Pittsburg County**

J. Campbell No. 1 Featherstone, C N½ NW SW Sec. 19-3-12. Drlg. 300 ft.
Supreme Oil Corp. No. 1 Hickey, NW SW NW Sec. 4-2-15. T.D. 1,040 ft.; S.D.
Supreme Oil Corp. No. 1 Stevenson, SW SW SE Sec. 27-3-14. T.D. 1,300 ft.; M.I. rotary.

**Pontotoc County**

Jack Lynch et al No. 1-A Parker, SW SW SE Sec. 17-4-8. T.D. 4,572 ft.; P.B 4,490 ft.; rlp in csg.; P.B. 4,090 ft. S.D.
H. Z. Moore No. 1 Payne, SE NW SE Sec. 16-4-4. T.D. 997 ft.; S.S.O.; S.D.
Union Dev. Co. No. 1-A Abbott, SW NW NE sec. 34-3-6. T.D. 2,013 ft.; S.D.

**Pottawatomie County**

Hall & Briscoe No. 1 Merkle, NW NW SE Sec. 32-8-5. T.D. 1st Wlx. 4,368 ft.; 2nd 4,385 ft.; T.D. 4,390 ft.; S.D.O.

**Seminole County**

Lesslie Rogers No. 1 Kidd, NE SW SE Sec. 33-10-8. T.D. 200 ft.; S.D.
J. F. Smith No. 1 Wolfe, NE NE SW Sec. 36-7-5. T.D. 2,987 ft.; to shoot.

**Texas County**

Republic Natl. Gas No. 1 Blackmer, C Sec. 15-6n-15ecm. T.D. 2,836 ft.; 20,800,000 ft. gas; comp.
Republic Nat. Gas Co. No. 1 Bungler, CSL SE Sec. 13-6n-15ecm. Drlg. 2,630 ft.
Republic Nat. Gas Co. No. 1 Clinkenbeard, NW NW SW Sec. 21-6n-14ecm. T.D. 2,848 ft.; I.P. 14,800,000 ft. gas; comp.
Republic Nat. Gas Co. No. 1 Thrall, C Sec. 22-6n-14ecm. S.G. at 2,625 ft.; drlg. 2,635 ft.

**Washita County**

Continental Oil Co. No. 1 Proctor, C NW Sec. 28-10-20w. Drlg. 8,325 ft.
L. B. McWhirter No. 1 fee, NW SW SW Sec. 34-8-19w. T.D. 2,180 ft.

## SOUTHERN OKLAHOMA

**Atoka County**

C. M. Sheldon and Gardner Pet. Co. No. 1 Lee, NE NW SW Sec. 2-4s-10e. Arb 2,843 ft.; S.D. 3,455 ft.

**Carter County**

Pure Oil Co. No. 1 Noble, NE SE Sec. 35-3s-1e. C.&P.

**Choctaw County**

Clyde Ross et al No. 1 Hardy, SE SE NW Sec. 21-7s-15. T.D. 1,300 ft., sd.; rng. csg. with S.S.O.

**Cotton County**

Jim Turner et al No. 4 Collins, NE SE NE Sec. 18-4s-10w. T.D. 1,300 ft.; all sds. carrying wtr.; D.&A.

**Stephens County**

M. J. Mitchell No. 1 Westfall, SE cor Sec. 33-2-4w. T.D. 4,505 ft.; sd. and wtr.; D.&A.

**Tillman County**

Smith No. 2 Hammel, NE NW NW sec. 6-5s-15w. T.D. 2,380 ft.; recvd. D.P. and S.D.

Lion Oil Ref. Co. No. 1 Powledge, SE cor., Lot 2, SW Sec. 7-18-17. Cd. top Jones sd. 7,597 ft.; 7-in. csg. 7,690 ft.; T.D. 7,700 ft.
Lion Oil Ref. Co. No. 2 Sewell, NE cor. Sec. 13-18-18. Top Jones sd. 7,512 ft.; cg. 7,546 ft.
Marine Oil Co. No. 2 J. H. Calloway, NW cor. E½ SE NE Sec. 13-18-18. Cd. top Jones sd. 7,515 ft.; top L. 7,623 ft.; 7-in. csg. 7,707 ft.
C. H. Murphy No. 1 fee, SE cor. SW NE Sec. 13-18-18. Set 10¾-in. csg. 2,147 ft.
Phillips Pet. Co. No. 1-B Bryan, NW cor. NE SE Sec. 13-18-18. Cd. 7,513-25 ft.; top sd. 7,512 ft.; T.D. 7,700 ft.; top L. 7,620 ft.; 7-in. csg. 7,681 ft.; perf. 7,559-92 ft.; swbg. to test 7,700 ft.
Phillips Pet. Co. No. 1 El Dorado Bnk., SW cor. NW SE Sec. 12-18-18. 10¾-in. csg. 1,717 ft.; top Jones sd. 7,594 ft.; 7-in. csg. 7,732 ft.; T.D. 7,765 ft.
Phillips Pet. Co. No. 1 Edwards, SW NE Sec. 17-18-17. Drlg. rd. sdy. sh. 6,891 ft.
Phillips Pet. Co. No. 2 Goodwin, Lot 1, NE Sec. 19-18-17. Top Jones sd. 7,564 ft.; drlg. 7,714 ft.
Phillips Pet. Co. No. 1 Milling, SE cor. SW Sec. 7-18-17. Drlg. sdy. sh. 7,566 ft.
Phillips Pet. Co. No. 1 Murphy, Lot 2, NW Sec. 19-18-17. Drlg. sdy. sh. 6,605 ft.
Phillips Pet. Co. No. 1 Nelson, Lot 3, NW Sec. 19-18-17. Drlg. rd. sdy. sh. 6,559 ft.
Phillips Pet. Co. No. 3 Sewell, Lot 5, SW Sec. 7-18-17. Top Jones sd. 7,577 ft.; top L. 7,674 ft.; 7-in. csg. 7,712 ft.; perf. 7,626-56 ft.; comp.; 34 B.P.H.; 20/64-in. ck.; T.P. 475 lbs.; C.P. 390 lbs.; T.D. 7,770 ft.
Phillips Pet. Co. No. 5 Sewell, NW cor. Lot 5, SW Sec. 7-18-17. Drlg. rd.&gr. sh. 5,685 ft.

**Union County—Other**

J. R. Lockhart No. 1 Raulston, C Sec. 12-17-14. Comp. 1,500,000 ft. gas through perf. 2,968-76 ft.; R.P. 1,100 lbs.; O.T.D. 3,485 ft.
J. R. Lockhart No. 3 Raulston, SE cor. NW SE Sec. 12-17-14. Cg. sd. S.O. 2,967 ft.

# ARKANSAS

**Calhoun County**

Samuel S. Alexander No. 1 Smythe, C NE NE Sec. 7-11-14. S.D. hd. sd. 3,085 ft.
C. E. Murdock No. 1 Southern Kraft Corp., SE cor. NW NW sec. 17-14-13. Top Nac. 2,372 ft.; top Tokio 2,920 ft.

**Columbia County**

Atlantic Ref. Co. No. 1 Garrett, C NW SW Sec. 13-17-20. Drlg. rd.&gr. sh. 5,634 ft.
Standard Oil Co. of La. No. 1 T. Crumpler, Sec. 15-17-19. Perf. csg. 7,388-7,402 ft.; cleaning; flwd. 302 B.P.D. fluid, 184 B.O. and 118 bbls. b.s.&w.; ¾-in. ck.; T.P. 900 lbs.; C.P. 2,475 lbs.; killed and pigd. tbg.; drld. to 7,426 ft.; pmpd. 50 sacks cmt.; washed down to 7,323 ft. and put 2,875 lbs. press. on csg.; T.D. L. 7,500 ft.; drld. plug to 7,396 ft.; perf. 7,393-96 ft.; 30 shots; flwg. 4,000,000 ft. gas and 190 bbls. 61.7-grav. dist.; ¾-in. ck.; C.P. 2,600 lbs.; T.P. 2,450 lbs.; no wtr.; comp.
Standard Oil Co. of La. No. 1 E. D. Harris, NW cor. NW SE Sec. 15-7-19. Drlg. ch. rk. 2,434 ft.
Standard Oil Co. of La. No. 4 McKean, SW cor. NW SW Sec. 8-16-22. R.U.
Standard Oil Co. of La. No. 1 Minnie Harris, NE cor. NE SW Sec. 15-17-19. Drk.
Standard Oil Co. of La. No. 2 J. L. Warren, Sec. 18-16-22. Top Buckner 6,975 ft.; 6-in. csg. 7,218 ft.; comp.; 8½ B.P.H.; ¼-in. ck.; 20% asphaltic emulsion; T.D. 7,255 ft.; reacd.; swbd.; flwd. fluid from 4 to 40% b.s.; W.O.S.R.
Tide Water Seaboard No. 1 Beene, C SE NW Sec. 15-18-19. S.D. 5,111 ft.; rep. rig.
G. H. Vaughn No. 2 Garrett, C SE SE Sec. 14-17-20. D.S.T. 5,733-58 ft.; 15 min.; ¼-in. cks.; rec. 1,000 ft. drlg. fluid and show cut oil; W.P. 26 lbs.; drlg. rd. sdy. sh. 7,285 ft.

**Little River County**

Barbee et al No. 1 Ada Mills, SE cor. SW NW Sec. 18-12-29. R.U.
C. & M. Drlg. Co. No. 1 Strawn, SW cor. SE Sec. 20-10-32. 10-in. csg. 63 ft.
Harford Oil Corp. No. 1 Pinning, C NE NE SW Sec. 6-13-30. Drlg. rd. sh. 1,669 ft.
Herzek & Smith No. 1 Waldrop, SE cor. NW Sec. 4-13-31. Top anhy. 2,208 ft.; S.D.; W.O.
Joe G. Straham et al No. 2 Dierks Lbr. Co. Top L. 2,425 ft.; S.D. 3,354 ft.

**Lonoke County**

Cabot Drlg. Club, Inc., No. 1 Benson Townsite, Sec. 18-4n-9w. Set 4½-in. csg. on pkr. 1,540 ft.; drlg. hd. sdy. L. 2,381 ft.
J. W. Eddington No. 1 Anderson, S.D.
Lonoke Prairie Dev. Co. No. 1 T. Young, C NW NW Sec. 8-3n-7w. Set 10-in. csg. 150 ft.; U.R. 225 ft.
J. F. Russell No. 1 J. T. Gunter, SE cor. Sec. 17-5-10. S.D. 1,620 ft.

**Miller County—Rodessa**

Gulf Ref. Co. No. 5 Johnson, SW cor. Sec. 29-15-15. R.U.
F. W. Martin & Co. No. 1 Watts, SE cor. SW NE Sec. 2-20-26. Drlg. L.&sh. 4,165 ft.
Red River Valley Oil Co. No. 1 Beck, Sec. 34-15-26. T.D. 3,008 ft.; reperf. ft.; tstd. S.W. and sd. 3,008 ft.

**Mississippi County**

Benedum & Trees Oil Co. No. 1 Mack, 330 ft. SW cor. NW SW Sec. 2-15n-12e. Top Nac. 2,160 ft.; set 7-in. csg. 2,897 ft.; T.D., hd. gr. L. 2,897 ft.; R. U.C.T.

**Nevada County**

Texas Canadian Oil Corp. No. 2 Stocks, NW SW SE Sec. 9-15-22. Drlg. 100 ft.
O. F. Whittaker No. 1 Edwards, Sec. 3-15-20. Cd. brkn. sd.; S.O. 2,030-2,155 ft. set 6¼-in. csg. 2,030 ft.; drlg. plug.

**Ouachita County**

Gulf Ref. Co. No. 5 Johnson, SW cor. SE SW Sec. 29-15-15. 6⅝-in. csg. 1,973 ft.; W.O.S.R. 1,983 ft.

**Pike County**

Bruce Wallace No. 1 Tilyeu, NE cor. SE Sec. 26-8s-24w. Drlg. hd. rk. 368 ft.

**Pulaski County**

A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW Sec. 2-1s-13e. S.D. 3,650 ft.

**Union County—Schuler**

Delta Drlg. Co. No. 1 Powledge, SW cor. NW NW Sec. 21-18-17. Drlg. rd. sdy. sh. 6,905 ft.
Fohs Oil Co. No. 1 Craig, C SE NE Sec. 5-18-14. Top Nac. 2,203 ft.; D.S.T. 20 min.; ⅜-in. cks.; rec. 40 ft. drlg. fluid; set 10¾-in. csg. 2,378 ft.; W.O.C.; T.D. 2,382 ft.
E. M. Jones No. 2-B Murphy Ld. Co., SW cor. S½ NE NE Sec. 13-18-18. Drlg. rd. sdy. sh. 6,712 ft.
Lion Oil Ref. Co. No. 3 Dee, SW NW Sec. 17-18-17. Set 10¾-in. csg. 1,884 ft.; W.O.C.; T.D. 1,905 ft.
Lion Oil Ref. Co. No. 8 Hardy Murphy, C NE NW Sec. 9-16-15. Set 7-in. csg. 2,443 ft.; top Graves sd. 2,392 ft.; perf. 2,390-93 ft.; pmpg.; no ga.
Lion Oil Ref. Co. No. 7-B Hays, O.W. W.O., formerly comp. 2,121-24 ft.; cd. to 2,032 ft.
Lion Oil Ref. Co. No. 1 Henry, SE cor. Sec. 12-18-18. Top L. 7,622 ft.; 7-in. csg. 7,671 ft.; W.O.C. 7,685 ft.
Lion Oil Ref. Co. No. 5 Marcus, Sec. 18-18-17. Drlg. rd.&gr. sh. 6,066 ft.
Lion Oil Ref. Co. No. 5 Marine, SE cor. NE SE Sec. 17-18-17. Top Jones 7,573 ft.; T.D. 7,650 ft.; 7-in. csg. 7,637 ft.; perf. 7,576-85 ft. and 7,603-06½ ft.; comp.; 40 B.P.H.; 20/64-in. ck.; T.P. 275 lbs.; C.P. 600 lbs.
Lion Oil Ref. Co. No. 6 Marine, NW cor. SW NW Sec. 18-17-17. Drlg. 3,045 ft.
Lion Oil Ref. Co. No. 6 Mayfield, NW cor. Lot 3, NW Sec. 18-18-17. Top Jones 7,550 ft.; 7-in. csg.; top Smackover L.; T.D. 7,730 ft.
Lion Oil Ref. Co. No. 7-A Morgan, C S½ Lot 7, SW Sec. 18-18-17. Drlg. rd.&gr. sh. 5,254 ft.
Lion Oil Ref. Co. No. 3 Nelson, C S½, Lot 6, SW Sec. 18-18-17. Drlg. rd.&gr. sh. 5,800 ft.

# LOUISIANA

## N. LOUISIANA WILDCATS

**Bienville Parish**

Ark.-La. Gas Co. No. 1-B Davis Bros. Lbr. Co., NW SW Sec. 7-16-4. 9⅝-in. csg. 2,557 ft.; drlg. sh.&anhy. 5,435 ft.
Producers O. & G. Co. No. 1 Graves & Thomas, SE cor. SW SE Sec. 23-15-10. Set 13⅜-in. 180 ft.

**Bossier Parish**

W. M. Chambers No. 1 Thomas, SE cor. Sec. 10-22-11. S.D.; W.O. 2,750 ft.
Premier Inv. Co. No. 1 McDade, SE SW NE Sec. 28-19-11. T.D. 2,384 ft.; acd. with 1,000 gal.; csg. seat gave away; hole full S.W.
Premier Inv. Co. No. 45 Wyche, SE cor. N½ NW Sec. 14-19-11. Top sd. 277 ft.; 6⅝-in. csg. 280 ft.; tstg. 398 ft.
J. B. Stovall et al No. 3 Ark. Fuel Oil Co. fee, NE SE Sec. 15-19-11. 6-in. csg. 382 ft.; W.O.C.
Triangle Drlg. Co. No. 1-B Schuler, SE cor. SW NW Sec. 13-17-12. Top por. L. 3,113 ft.; set 5½-in. 3,110 ft.; acd. with 2,500 gal.; tstg. 3,141 ft.

**Caddo Parish**

C. L. Ablinger No. 1 Gregory, NE cor. Sec. 3-20-11. Drlg. 450 ft.
R. E. Allison No. 1 State, SE cor. Sec. 28-18-14. Top anhy. 4,068 ft.; T.M.A. 4,337 ft.; T.D. 5,618 ft.; por. L. 5,533 ft.; perf. csg. 5,575-90 ft. and tstd. dry; perf. 5,540-70 ft. and tstd. est. 5,000,000 ft. gas; ¾-in. ck.; T.P. 1,600 lbs.; C.P. 300 lbs.; 7-in. csg. 5,604 ft.
R. L. Bauman No. 1 Slattery Est., 660 ft. NW cor. Sec. 35-18-14. Set 13⅜-in. csg. 300 ft.; set 9⅝-in. csg. 2,053 ft.; gas sd. at 2,550 ft. blew out; rng. wild with D.S. in hole; made wtr.; sd. est. 10,000,000 ft. gas; S.I.; D.S. stk. 2,550 ft.; P.B. 2,000 ft.; to sdtrk.; drlg. anhy.&sh. 4,360 ft.
F. W. Burford No. 1 Williams, SW cor. NW SW Sec. 4-23-15. Drlg. sh. 1,826 ft.
Carney et al No. 1 Hart; O.W.W.O. Old T.D. 2,372 ft.; C.O. and arng. set 6-in. csg. 1,495 ft.; W.O.S.R. 1,800 ft.
W. D. Chew No. 4 Stiles, SE cor. NW Sec. 33-21-16. Drlg. 1,150 ft.
W. D. Chew No. 5 Stiles, SW cor. Sec. 27-21-16. 4½-in. csg. 1,800 ft.; tstd. S.W. 1,908 ft.; P.B. 1,033 ft. and W.O.C.; O.T.D. 1,968 ft.
W. D. Chew No. 6 Stiles, SW NE Sec. 28-21-16. Set 6-in. csg. 1,945 ft.; T.D. 1,954 ft.; tstd. S.W. 1,954 ft. and P.B. 1,944 ft.; drld. out to 1,954 ft.; tstd. S.W. and recmtg. csg. 1,954 ft.
Paul Cooper No. 2 Stiles, SW SE Sec. 28-21-16. Drlg. sh. 1,000 ft.
Tony DeGrazier No. 1 Welsh, NE cor. Sec. 3-20-16. 7-in. csg. 925 ft.; tstd. S.W.; S.O. 968 ft.; W.O.S.R.
Falcon Oil Co. No. 2 Glassell-Youree, SE cor. Sec. 26-20-15. Tstd. dry; S.O.&S.W.; will acd.; T.D. 2,306 ft.; W.O.S.R.
M. M. Ferrell No. 1 Dyer, Sec. 10-20-16. Set 6-in. csg. 1,008 ft., T.D.; W.O.S.R.
G. W. Gibson No. 2 Muslow, SW cor. NW NW Sec. 6-20-15. 10-in. 40 ft.
Hillman et al No. 1 Gilbert, SW cor. Sec. 18-20-15. S.D. 2,180 ft.
Hollywood Oil Corp. No. 1 C.&B. Realty Co., C NE NE Sec. 22-17-14. B. ch. rk. 1,745 ft.; top anhy. 4,165 ft.; top Pettit sd. 5,674 ft.; no por.; top Tr. Pk. 5,957 ft.; drlg. sd.&sh. 5,990 ft.
W. C. Knox No. 1 Burton, NW cor. Sec. 7-20-15. 6⅝-in. csg. 1,339 ft.
C. D. Lee No. 1 Meyer, SE cor. Sec. 33-18-14. Drlg. sh.&L. 3,303 ft.
Ben Levy No. 1 Crystal fee, SW cor. Sec. 25-21-16. 10-in. csg. 40 ft.
Manziel et al No. 3 Ramsey, NE SE Sec. 32-21-15. R.U.
J. Ober & Sons No. 1 fee, SE cor. Sec. 36-21-16. Set 8-in. csg. 1,431 ft.; tstd. dry 1,684 ft.; set 6-in. csg. 2,257 ft.; tstg. 2,279 ft.
Olla, Inc., No. 1 Cazaux, sec. 10-16-13 S.D.; contract depth, 3,500 ft.
J. T. Parks et al No. 1 Grayson, C SE SE Sec. 30-19-15. R.U.&S.D.
Rodessa O. & R. Co. No. 1 Chandler, C SW NE Sec. 34-18-14. Set 9⅝-in. csg. 2,067 ft.; gas blow out; est. 15,000,000 ft. gas 2,419 ft.; killed and drlg. sdy. sh. 2,425 ft.
Harry Smith No. 1 Sproull, SE cor. Sec. 32-20-16. Set 5-in. csg. 1,411 ft.; tstg. 1,658 ft.
Southern Star Pet. Corp. No. 1 Muslow, SE NW Sec. 17-20-15. Pmpd. S.W.; arng. dpn. 1,860 ft.; wsg. to bttm.
Tri-State Prod. Corp. No. 1 Stiles, SE cor. NE Sec. 28-21-16. Drlg. 1,550 ft.
Nat Wissman No. 5 Stiles, NW NW Sec. 6-20-15. Set 7-in. csg. 1,040 ft.; W.O.S.R.

**Claiborne Parish**

Magnolia Pet. Co. No. 1-B Patton, C NE NW Sec. 13-20-5. Drlg. sh.&L. 4,002 ft.
Maritzky & Bibby No. 1 McClung, Sec. 29-21-7. 6-in. csg. 1,819 ft.; T.D. 1,822 ft.
E. T. Oakes et al No. 2 Kilgore, C NW SE Sec. 28-21-5. Drlg. L.&sh. 5,017 ft.

**De Soto Parish**

S. S. Alexander No. 1-A Stoll, sec. 8-12-16. Set 7-in. csg. 2,705 ft.; acd. with 3,000 gal. and tstd. est. 2,000,000 ft. gas; 400 lbs.; tstg. 2,761 ft.
Pet. Heat & Power Co. No. 1 Wm. Rives, SW cor. SE Sec. 20-12-11. D.&A. 3,620 ft.

**Grant Parish**

C. R. Bowers No. 1 Harrison Est., Sec. 21-8-5. D.&A. 3,021 ft.
Fred Stovall No. 1 Mattheson, NW cor. Sec. 15-9-1e. R.U.

**La Salle Parish**

Trichell et al No. 1 Gallagher, NW cor. Sec. 31-9-2e. R.U.

**Natchitoches Parish**

Jos. E. Popkins No. 1 Peavy Lbr. Co., NW cor. SE NW Sec. 36-7n-9w. D.&A. 500 ft.

**Red River Parish**

J. M. Forgetson No. 1 Marston, SE SE Sec. 30-14-10. Top gas sd. 960 ft.; 7-in. with 110 ft. perf. on bttm. at 1,074 ft.; T.D. 1,074 ft.; tstd. S.W.; S.G. 1,074 ft.; drlg. ch. rk. 1,487 ft.
Glassell & Whitehurst No. 1 LeLong, NE cor. NW NE Sec. 25-12-11. D.&A. 2,874 ft.
N. W. Hunter No. 1 LeLong, NW cor. NW SE Sec. 33-12-10. R.U.
J. F. Lent No. 1 Chicago Coal & Ld. Co., SE cor. Sec. 17-13-11. T.D. 2,975 ft.; D.&A.
Magnolia Pet. Co. No. 59 Pugh, Sec. 12-12-11. Drlg. sdy. sh. 3,408 ft.
J. C. Prine No. 3 Haynes, SW cor. Sec. 20-13-10. 5¾-in. csg. 2,510 ft.; T.D. 2,510 ft.; W.O.S.R.

**Sabine Parish**

Addison & Peterson No. 1 Dew, SE cor. SW SE Sec. 22-8-11. Used 1,500 gal. acd. and tstd. S.O. 2,587 ft.; arng. reacd. 2,587 ft.
W. D. Ambrose No. 1 Sabine, SW cor. SE Sec. 33-8-13. 6-in. 2,072 ft.; tstd. S.W. 2,534 ft. and P.B. 2,509 ft.; used 8,500 gal. acd. and tstd.; S.D. 2,509 ft.
A. B. House No. 1 Sabine, NW NW Sec. 23-7-14. 8-in. csg. 2,134 ft.; used 7,000 gal. acd.; tstd. dry; S.D. 2,608 ft.
LeGrande & Brown No. 1 Tatum, NE cor. NW NW NE Sec. 17-8-13. Tstd. dry 2,130 ft.; tstd. S.G.; acd. with 1,000 gal.; tstd. dry 2,340 ft.; arng. dpn. 2,340 ft.
McClanahan et al No. 1 Frost Lbr. Co., C NE SW Sec. 22-9-13. Comp.; 25 B.P.D.; pmpg.; T.D. 1,702 ft.; O.T.D. 5,710 ft.
Major Oil Co. No. 5 Bowman Hicks, SW cor. SE NW Sec. 7-7-12. 7-in. csg. 2,296 ft.; S.D.; wtr. 2,298 ft.
Morris Co. No. 1-A Ervine & Bishop, C NE SW Sec. 14-7-13. Set 6-in. csg. 2,177 ft.; S.D.; wtr. 2,189 ft.
Geo. L. Pace No. 3 Logan Oil Co., SW NW Sec. 26-10-13. Tstd. dry 1,915 ft.; b. ch. rk. 1,936 ft.; tstd. S.O.; comp.; pmpg. 12 B.P.D.; T.D. 1,952 ft.
Richards & Holloway No. 1 Bowman Hicks, Sec. 11-7-13. Tstd. dry 2,404 ft.; acdzd. with 5,000 gal.; tstd. dry; T.D. 2,548 ft.; abd.; will not pmp.
Richards & Holloway No. 1 Long Bell, C NW NE Sec. 15-7-13. 10-in. 95 ft.;

5½-in. 2,130 ft.; tstd. S.G. and used 5,000 gal. acd.; tstd. S.O. and S.D.
C. R. Schuster No. 1 Mary Garcia, NE cor. NW SE Sec. 15-7-13. T.D. 2,603 ft. P.B. 2,585 ft.; tstd. dry S.D.; W.O. 2,585 ft.
Sklar & Neighbors No. 1 Martinez, Sec. 11-7-13. Drlg. sh. 1,785 ft.
M. S. Slagle et al No. 1 Chadwick, SW cor. SE NW Sec. 32-8-10. R.U.
C. H. Smith No. 1 Sabine Lbr. Co., NE cor. NW NW Sec. 9-7-13. Set 10-in. csg. 66 ft.
J. L. Spier No. 1 Hale, NE SE Sec. 1-7-13. P.B. 2,439 ft. to test; O.T.D. 2,519 ft.; tstd. dry 2,439 ft. and P.B. 2,429 ft.; D.&A. 2,519 ft.
Tropical Oil Co. No. 1 Long Bell Lbr. Co., Sec. 5-8-13. D.S.T. 3,192-3,254 ft.; tstg. 65 ft. mud; S.G. in 10 min.; S.D.; contr. depth, 3,507 ft.; tstd. S.G. 3,204-12 ft.
Lee Whitehurst No. 2 First Natl. Bnk., C SE NW Sec. 14-7-13. 7-in. csg. 2,212 ft.; tstd. dry 2,301 ft.; S.D.
Zwolle Synd. No. 1 Mansfield Lbr. Co., Sec. 8-7-19. T.D. 4,323 ft.; 5-in. csg. 3,830 ft.; drlg. plug 4,323 ft., 2,500 gal. acd.; perf. 3,730-70 ft.; tstd. dry; W.O. 3,770 ft.; O.T.D. 4,323 ft.

**Tensas Parish**

H. V. Schumacker No. 4 Mound Plantation, Sec. 29-11-12e. Rmg. to bttm.; T. D. 2,450 ft.

**Webster Parish**

Hunt Oil Co. No. 3 Bodcaw-Stewart, C NW SW Sec. 34-21-10. Hollowy sd. 5,822-46 ft.; 9⅝-in. csg. 5,951 ft.; tstd. S.O.&G.; T.D. 5,840 ft.; O.T.D. 5,956 ft.; shot form. 5,830-40 ft. with 200 qts. nitro; comp.; 75 B.P.D.; 23/64-in. ck.; C.P. 800 lbs.; T.P. 100 lbs.; T.D. 5,840 ft.; O.T.D. 5,956 ft.
Hunt Oil Co. No. 2 Davis Unit, C NW NW Sec. 24-21-10. Hollw. sd. 5,595-5,603 ft.; set 9⅝-in. csg.; did not test Hollwy sd.; drlg. sh.&L. 7,189 ft.
Hunt Oil Co. No. 10 Davis, C SE SE Sec. 13-21-10. Hollwy. sd. 5,674-78 ft. and 5,719-27 ft.; 9⅝-in. csg. 5,660 ft.; tstg. 6,038 ft.
Hunt Oil Co. No. 20 Hope, C NE NW Sec. 24-21-10. Top Holloway sd. 5,596-5,604 ft.; set 9⅝-in. csg. 5,580 ft.; did not test Holloway sd.; top Bodcaw sd. 8,165 ft.; top Davis sd. 8,479 ft.; cutting stk. D.S. 6,118 ft.
Hunt Oil Co. No. 22 Hope Est., C SE SW Sec. 24-21-10. Drlg. sh.&L. 4,566 ft.
Hunt Oil Co. No. 1 Sandifer, C NE NE Sec. 4-20-10. No Holloway sd. yet; set 9⅝-in. csg. 5,730 ft.; top lower Marine 8,140 ft.; drlg. sh. 8,327 ft.
Magnolia Pet. Co. No. 4 Branton, NE cor. Sec. 6-22-9. Drlg. sh. 795 ft.
Magnolia Pet. Co. No. 1 Merritt Unit, C SW NW Sec. 14-21-10. Top Tr. Pk. 5,715 ft.; no Holloway; 9⅝-in. csg. 5,850 ft.; drlg. sd.&sh. 7,891 ft.
Magnolia Pet. Co. No. 1-C Pardee, C NW NE Sec. 17-23-11. Rmd. and set 9⅝ in. csg. 5,920 ft.; top lower Marine 7,998 ft.; cg. bl. sh. 8,532 ft.
Midstates Oil Corp. No. 1 Weiori Lbr. Co. Unit, NE cor. NW Sec. 3-20-10. 9⅝-in. csg. 5,699 ft.; drlg. rd. bds.& sd. 7,932 ft.
Ohio Oil Co. No. 5 Bodcaw, Acct. 5, Sec. 13-21-10. Drlg. 2,373 ft.
Ohio Oil Co. No. 51 Bodcaw Acct. 2, NE cor. Sec. 15-21-10. Drlg. rd. bds. 5,606 ft.
Ohio Oil Co. No. 1 W. Cox, Acct. 2, SE cor. SW Sec. 15-21-10. No Hollwy. sd.; 9⅝-in. 5,714 ft.; drlg. hd. sd. 7,435 ft.
Ohio Oil Co. No. 8 B. Sydney Hrs., SW cor. Sec. 16-20-10. Drlg. L.&sh. 4,170 ft.
Oliphant Oil Corp. No. 1 Fred Banks, C SE NW Sec. 2-20-10. Set 9⅝-in. csg. 5,616 ft.; drlg. sh.&sd. 7,070 ft.
Oliphant Oil Corp. No. 1 Gray & Stephens, C SE SW Sec. 35-21-10. Drlg. L.&sh. 3,732 ft.
Oliphant Oil Corp. No. 1-B Stewart, C NW NE Sec. 5-20-10. Top Tr. Pk. 6,117 ft.; Holloway sd. 6,160-67 ft.; 9⅝-in. csg. 5,884 ft.; drlg. sdy. sh. 8,234 ft.
Oliphant Oil Corp. No. 2-B Stewart, C NW NW Sec. 4-20-10. No Hollwy. sd.; 9⅝-in. csg. 5,615 ft.; drlg. sdy. sh. 7,358 ft.
Sibley Sabine No. 1 McDonald, NW cor. Sec. 32-17-9w. Drlg. sh. 2,070 ft.
Stanolind O. & G. Co. and W. Delaney No. 1 Pardee-Coffee Unit, C NE Sec. 36-21-10. R.U.
Stanolind O. & G. Co. and Hunt Oil Co. No. 1 Pardee-Coffee Unit, C NE NE Sec. 36-21-10. Drlg. sh.&L. 4,910 ft.
Stanolind O. & G. Co. No. 1 Webster Inv. Co., C NE NE Sec. 35-21-10. 13⅜-in. csg. 737 ft.; drlg. sh.&L. 5,592 ft.
Woodley Pet. Co. No. 1 Couch, C NW SW Sec. 36-21-10. 13⅜-in. csg. 664 ft.; drlg. sh.&L. 4,290 ft.

## SOUTH LOUISIANA FIELDS

**Abbeville—Vermilion Parish**

Continental Oil Co. No. 1 Clody-Primeaux, Sec. 61-12s-3e. Drlg. L.&shlls. 7,831 ft.
Continental Oil Co. No. 1 Franciol, Sec. 67-12s-3e. Drlg.

**Bancroft—Beauregard Parish**

Geo. E. Lilly et al No. 1 W. K. Rice, Sec. 15-6s-13w. Drlg. sh. 1,002 ft.
Republic Prod. Co. No. 2 Columbia Ld. & Tmbr. Co., Sec. 16-6s-13w. T.D. 3,400 ft.; P.B.; sdtrkd.; drlg. 4,508 ft.
Republic Prod. Co. No. 2 Lutcher Moore Lbr. Co., Sec. 16-6s-13w. Drlg. sh. 5,498 ft.

**Bateman Lake—St. Mary Parish**

Texas Co. No. 1 Wax Bayou, Sec. 21-16s-12e. T.D. 11,085 ft.; D.S. stk.

**Bay St. Elaine—Terrebonne Parish**

Texas Co. No. 4 State-Bay St. Elaine Sec. 19-23s-20e. T.D. 6,811 ft.; I.P. 364 B.P.D.; ⅛-in. ck.

**Baton Rouge—East Baton Rouge Parish**

Geo. Helis et al No. 1 Aztec Oil & Roy. Co., Sec. 41-8s-1w. Drk.

**Bayou Blue—Iberville Parish**

Humble O. & R. Co. No. 9 Wilberts Sons Lbr. Co., Sec. 66-9s-11e. Drk.

**Bayou Choctaw—West Baton Rouge**

La. Crusader Oil Co. No. 3 Schwing, Sec. 29-8s-11e. T.D. 8,512 ft.; 7-in. csg. 8,511 ft.; perf. csg. 8,376-96 ft.; I.P. 780 B.P.D.; ¼-in. ck.

**Bayou Des Allemands—St. Charles Parish**

Amerada Pet. Corp. No. 1 Gheens Realty Co., sec. 56-15s-20e. T.D. 7,021 ft.; D.P. stk.; P.B. to 5,000 ft.; sdtrkd. at 5,000 ft.; drld. to 6,984 ft.; 9⅝-in. csg. 6,982 ft.; T.D. 8,206 ft., salt; P.B. 8,150 ft.; D.S. stk.; sdtrkd.; drlg. sh. 7,322 ft.
Amerada Pet. Corp. No. 2 St. Charles Ld. Co., sec. 13-15s-20e. T.D. 8,500 ft.; 9⅝-in. csg. 8,518 ft.; top salt 9,294 ft.; T.D. 8,295 ft.; P.B. 8,999 ft.; W. O.C.; set 680 ft. of 5½-in. csg. 8,997 ft.; perf. csg. 8,900-20 ft.; flwd. oil and wash wtr. for 20 hrs.; went dead; pull tbg.; perf. csg. 8,900-20 ft.; sqzd. with cmt.; perf. csg. 8,888-98 ft.; flwd. oil and S.W.; went dead; perf. csg. 8,873-88 ft.; swbd. 113 B.O., 161 bbls. S.W.; S.D.
Wm. Helis No. 3 Duplantier, Sec. 65-7s-1w. T.D. 2,146 ft.; run csg.

**Big Lake—Cameron Parish**

Union Sulphur Co. No. 1 Hebert, Sec. 18-12s-8w. T.D. 10,521 ft.; P.B. 9,160 ft.; perf. csg. 9,140-57 ft.; I.P. 7 B.O. P.D. with 98% S.W.

**Caillou Island—Terrebonne Parish**

Texas Co. No. 4 State-Terrebonne Bay, Sec. 19-23s-20e. Loc.
Texas Co. No. 5 State, Sec. 19-23s-20e. T.D. 6,240 ft.; sdtrkd.; T.D. 6,521 ft.; P.B.; sdtrkd.; drlg. sd.&sh. 6,554 ft.
Texas Co. No. 29 State, Sec. 17-23s-20e. Rig.

**Cameron Meadows—Cameron**

Burton-Sutton Oil Co. No. 26 Sch. Ld., Sec. 16-14s-13w. T.D. 2,465 ft.; 13⅜-in. csg. 2,465 ft.; drlg. sh.&L. 3,187 ft.
Magnolia Pet. Co. No 23 Cameron Meadows, Sec. 21-14s-13w. Drlg. sdy. sh. 1,428 ft.

**Chacahoula—LaFourche Parish**

Sun Oil Co. No. 3 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. Drlg. sd. 1,175 ft.

**Charenton—St. Mary Parish**

H. J. DeArman No. 1 Oak Lawn Plantation, Sec. 24-13s-10e. S.D. 8,465 ft.; abd.
H. L. Edwards et al No. 1 Robichaux, Sec. 30-13s-9e. Drlg. sh. 600 ft.
Kinsley Oil, Inc., No. 1-B Hertel, Sec. 30-13s-9e. Loc.
Kinsley Oil, Inc. No. 2 Hertel, sec. 21-13s-9e. Sd. 1,775-87 ft.; I.P. 300 bbls. flwg.

**Convent—St. James Parish**

Continental Oil Co. No. 2 Realty Operators, Inc., Sec. 16. Loc.

**Creole—Cameron Parish**

Superior Oil Co.-Pure Oil Co. No. 3 State-Gulf of Mexico. T.D. 2,458 ft.; rep. rig.

**Darrow—Ascension Parish**

Humble O. & R. Co. No. 19 Community, Sec. 31-10s-2e. T.D. 7,280 ft., salt; P.B. 4,596 ft.; sdtrkd.; drlg. sh. 5,550 ft.
Humble O. & R. Co. No. 4 Landry, Sec. 34-10s-2e. Drk.
Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. S.D. 2,523 ft.

**Dog Lake—Terrebonne Parish**

Texas Co. No. 8 State, Sec. 5-22s-16e. T.D. 6,790 ft., sd.; 7-in. csg. 6,735 ft.; I.P. 418 B.P.D.; ¾-in. ck.

**Edgerly Field—Calcasieu Parish**

R. H. Kean et al No. 1 M. J. Muller et al, Sec. 29-9s-11w. Drlg. L.&sh. 2,519 ft.
Union Sulphur Co. No. 1 Ld. Sulphur Mining Co., Sec. 33-9s-11w. Drlg. sd.& sh. 850 ft.

**Fausse Point—Iberia Parish**

Texas Co. No. 5 State Lake-Fausse Point, Sec. 35-11s-8e. Drlg. sh.&shlls. 4,145 ft.

**Four Isle—Terrebonne Parish**

Texas Co. No. 10 State, sec. 24-21s-15e. 9⅝-in. csg. 6,775 ft.; T.D. 9,933 ft., sh.&L.; P.B. 9,864 ft.; drld. out to 9,872 ft.

**Gibson—Terrebonne Parish**

Shell Pet. Corp. No. 1 Kuntz, Sec. 40-17s-15e. T.D. 10,752 ft.; P.B. 9,178 ft.; 5-in. csg. 9,178 ft.; tstd. S.W. 9,093-95 ft.; tstg. at 8,880-85 ft.; showed S.W. flwg. 20 B.F.P.H.; 10/64-in. ck., 12% oil, balance S.W.; flwg. 70 B.F.P.H., 10% oil, 90% S.W.
Shell Pet. Corp. No. 6-B Realty Operators, Sec. 17-17s-15e. Dredge canal.

**Garden Island—Plaquemines Parish**

Texas Co. No. 30 State, Sec. 38-23s-33e. Drlg. sd.&sh. 6,116 ft.

**Gillis—Calcasieu Parish**

Fohs Oil Co. No. 1 Erwin, Sec. 14-9s-8w. R.U.
Union Sulphur Co. No. 9 Castle, Sec. 13-9s-8w. T.D. 7,147 ft.; 5-in. csg. 7,147 ft.

**Grand Bay—Plaquemines Parish**

Gulf Ref. Co. No. 2 Grand Prairie Lve., sec. 48-20s-18e (1,320 ft. W of No. 1). T.D. 6,148 ft.; 9⅝-in. csg. 6,125 ft.; flwd. I.P. 155 B.P.D.; 7/32-in. ck.
Gulf Ref. Co. No. 1 State-QQ, Sec. 6-20s-19e. Drlg. sh. 310 ft.

**Hackberry—Cameron Parish**

L. W. Capps et al No. 1 Duhon, Sec. 27-12s-10w. S.D. 75 ft.
Gulf Oil Corp. No. 24 Erwin, Sec. 13-12s-10w. Drlg. 37 ft.
Stanolind O. & G. Co. No. 12 Carter, Sec. 22-12s-10w. T.D. 3,647 ft.; 7-in. csg. 3,515 ft.; P.B. 3,605 ft.; perf. csg. 3,062-70 ft.; I.P. 600,000 ft. gas; ¾-in. ck.
Stanolind O. & G. Co. No. 2 Kaugh, Sec. 28-12s-10w. Drlg. sd.&sh. 2,271 ft.
Superior Oil Co. No. 4 Benson, Sec. 30-12s-10w. Drk.
Superior Oil Co. No. 1-C Dorrisse, Sec. 30-12s-10w. T.D. 7,045 ft.; 7-in. csg. 6,625 ft.; perf. csg. 6,730-42 ft.; tstd. gas; perf. csg. 6,550-80 ft. and 6,540-50 ft.; I.P. 300 B.P.D.; 10/64-in. ck.
Texas Co. No. 16-B State-Hackberry, Twp. 12s-9w. Driving piling.
Texas Co. No. 24-B State, Sec. 12s-9w. T.D. 8,052 ft.; sdtrkd.; T.D. 8,163 ft.; 7-in. csg. 8,050 ft.; perf. csg. 7,903-16 ft.; tstd. S.W.; P.B. 7,780 ft.; perf. csg. 7,763-74 ft.; W.O.S.R.
Union Sulphur Co. No. 7 Caldwell et al, Sec. 37-12s-10w. R.U.
Union Sulphur Co. No. 7 Hanzen, sec. 13-12s-10w. T.D. 4,165 ft.; P.B. 4,010 ft.; sdtrkd. 4,083 ft.; T.D. 4,142 ft.; P. B.; sdtrkd.; drlg. sh. 2,403 ft. (cor.).

**Horseshoe Bayou—St. Mary Parish**

Texas Co. No. 2 State, Sec. 37-17s-9e. Cg. sd.&sh. 11,335 ft.

**Jefferson Island—Iberia Parish**

Texas Co. No. 1 State-Lake Peigneur, Twp. 12s-5e. Top salt 3,642 ft.; base salt 3,741 ft.; top salt 7,880 ft.; T.D. 7,897 ft.; run 7⅝-in. csg.

**Jennings—Acadia Parish**

F. W. Bennett Oil Corp. No. 1 Grace Sec. 45-9s-2w. T.D. 5,350 ft.; 7-in. csg. 5,320 ft.; I.P. 7 B.P.H.; ¼-in. ck.
W. T. Burton No. 6 Roboria, sec. 41-9s-2w. 7-in. csg. 6,721 ft.; fsg. tbg.; T.D. 6,997 ft.; sdtrkd. at 6,118 ft.; drld. to 6,178 ft.; trying to sdtrk. 6,047 ft.
Frio Oil Co. No. 2 Gulf fee, sec. 45-9s-2w (NW flank). 10¾-in. csg. 1,512 ft. T.D. 6,882 ft.; P.B. 6,655 ft.; sdtrkd.; drlg. sd.&sh. 6,949 ft.
Frio Oil Co. No. 1 Iowa-Jennings, Sec. 45-9s-2w. T.D. 6,687 ft.; P.B. 4,300 ft.; T.D. 6,170 ft.; twisted off drill collar; fsg.; sdtrkd. 5,550 ft.; T.D. 7,335 ft.; P.B. 2,965 ft.; sdtrkd.; drlg. sdy. L. 4,688 ft.
Frio Oil Co. No. 2 Iowa-Jennings, Sec. 45-9s-2w. 10¾-in. csg. 1,555 ft.; cg. sd. &sh. 6,949 ft.
Glassell & Glassell No. 4 McFarlain, Sec. 41-9s-2w. Drk.
Glassell & Glassell No. 6 Trushell, sec. 42-9s-2w. T.D. 8,005 ft.; 7⅝-in. csg. 7,973 ft.
Guaranty Oil Co. No. 2 Houssere-Latrielle, Sec. 47-9s-2w. Drlg. gbo. 800 ft.
Gulf Oil Corp. No. 40 Arnaudet, sec. 48-9s-2w. T.D. 4,483 ft.; run 9⅝-in. csg. 4,478 ft.; drlg. sd.&pyrites 6,266 ft.
Gulf Ref. Co. No. 1 Lamb, Sec. 45-9s-2w. Drlg. sh. 1,215 ft.
L. & L. Oil Co. No. 3 Houssiere-Latrielle, Sec. 47-9s-2w. 7-in. csg. 1,750 ft.; T.D. 1,841 ft., sd.; run screen.
Ladak Oil Corp. No. 7 Jennings, Sec. 46-9s-2w. T.D. 2,435 ft.
O'Mera et al No. 2 McFarlain, Sec. 41-9s-2w. Drk.
Port City Oil Co. No. 22 Jennings-Haywood, Sec. 41-9s-2w. T.D. 2,065 ft.; 7-in. csg. 2,035 ft.
Shell Pet. Corp. No. 5 Community, Sec. 40-9s-2w. Drlg. sh. 3,552 ft.
Stanolind O. & G. Co. No. 113 Crowley & Mineral Co., Sec. 48-9s-2w. Bldg. dk.
Superior Oil Co. No. 8 Jennings-Haywood, Sec. 41-9s-2w. T.D. 6,414 ft.; 7-in. csg. 6,387 ft.
Superior Oil Co. No. 15 Leckelt, Sec. 42-9s-2w. Drlg. sh. 6,694 ft.
Three Sands Oil Co. No. 2 Clement, Sec. 46-9s-2w. 6-in. csg. 1,700 ft.; T.D. 2,283 ft.; fsg.
Victor Weisse No. 1 Clement, sec. 46-9s-2w. 6⅝-in. csg. 3,032 ft.; T.D. 3,258 ft.; sdtrkd.; T.D. 3,300 ft.; well blew out; sdtrkd. while rmg.; T.D. 3,324 ft.; 4-in. csg. 3,301 ft.

**Lafitte—Jefferson Parish**

Carter-Perrin & Brian No. 1 Lucien Adams, Sec. 9-17s-24e. T.D. 8,886 ft.; S.D.
Texas Co. No. 12 LaFitte, Sec. 20-17s-24e. Drlg. sdy. sh.&L. 9,124 ft.
Texas Co. No. 3 Marrero Ld. Co., sec. 29-17s-24e. T.D. 10,300 ft.; 9⅝-in. csg. on bttm.; perf. csg. 9,845-68 ft.; I.P. 985 B.P.D.; ⅝-in. ck.
Texas Co. No. 19 Rigolet Cooperative Fur Co., Sec. 28-17s-24e. T.D. 10,188 ft.; 9⅝-in. csg. 10,188 ft.; perf. csg. 10,002-37 ft.; tstg.
Texas Co. No. 1 Sch. Bd., Sec. 16-17s-24e. Drlg. sh.&shll. 1,747 ft.

**Lake Barre—Terrebonne Parish**

Texas Co. No. 42 State-Lake, sec. 40-21s-19e. Top salt 11,301 ft.; T.D. 11,333 ft.; 7-in. csg. 11,333 ft.; set 4,369 ft. of 5-in. csg. at 10,545 ft.; perf. csg. 10,460-10,530 ft.; would not flow; re-perf. csg.

**Lake Pelto—Terrebonne Parish**

Texas Co. No. 21 State, sec. 8-23s-18e. T.D. 6,058 ft.; P.B. and sdtrkd.; T.D. 5,761 ft.; PB. 5,536 ft.; to sdtrk.; T.D. 6,048 ft.; P.B. and sdtrkd. 5,100 ft.; T.D. 6,041 ft.; P.B. sdtrkd.; T.D. 6,280 ft.; 7-in. csg. 6,200 ft.; perf. csg. 6,105-35 ft.; fsg. for swab.
Texas Co. No. 22 State, Sec. 8-23s-18e. Bldg. drk.

**Leesville—La Fourche Parish**

Texas Co. No. 7 Leeville, sec. 27-21s-22e. T.D. 8,667 ft.; D.S. stk.; fsg.

**Lirette—Terrebonne Parish**

Humble O. & R. Co. No. 1 Laterre, Inc., Sec. 31-19s-19e. Dredge canal.
Humble O. & R. Co. No. 1 Robert Verret, Sec. 32-19s-19e. Drlg. hd. sd.&gvl. 1,876 ft.; 20-in. csg. 296 ft.; 13⅜-in. csg. 3,164 ft.; cd. oil sd. 8,463-65 ft. 9⅝-in. csg. 9,056 ft.; T.D. 11,767 ft.; P.B. 8,520 ft.; perf. csg. 8,450-60 ft.; flwg. est. 7,000,000 ft. gas per day; ¾-in. ck.; T.P. 3,050 lbs.

**Lockport—Calcasieu Parish**

T. C. Markley No. 1 Farquhar (offset Continental No. 1 J. H. Moss). T.D. 6,733 ft.; P.B. 5,300 ft.; 7-in. csg. 5,320 ft.; perf. csg. 4,607-11 ft.; tstd. S.W.; P.B. 4,441 ft.

**Lake Long—La Fourche Parish**

Fohs Oil Co. No. 6 State-Lake Long, Twp. 17s-19e. 10¾-in. csg. 3,066 ft.

**New Iberia—Iberia Parish**

H. Fotiades No. 7 Gulf Ld., Sec. 25-12s-7e. Drk.
Wm. Helis No. 6 Bolivar, Sec. 56-12s-7e. Drlg. sh. 890 ft.
Texas Co. No. 2 Bryant, Sec. 25-12s-7e. R.U.
Texas Co. No. 5 Bryant, Sec. 25-12s-7e. Drlg. sdy. sh. 4,043 ft.
Texas Co. No. 1 Gonsoulin, Sec. 13-12s-7e. Drlg. sh.&L. 5,699 ft.

**North Crowley—Acadia Parish**

Humble O. & R. Co. No. 1 Staker, Sec. 33-8s-1e. Drk.

**Port Barre—St. Landry Parish**

Pan American Prod. Co. No. 1 Rene Nezal. Drk.
Y. D. Spill No. 1 Gaudet, sec. 4-6s-5e. S.D. 4,700 ft.

**Potash—Plaquemines Parish**

Humble O. & R. Co. No. 37 Orleans Lv. Bd., Sec. 23-18s-15e. Drlg. 212 ft.
Western Gulf Prod. Co. No. 1 Paseale, Sec. 6-18s-27e. Loc.
Western Gulf Prod. Co. No. 1 Sam Treadway, Sec. 6-18s-27e. Drk.

**Quarantine Bay—Plaquemines Parish**

Gulf Ref. Co. No. 4 State, Sec. 17-19s-17e. T.D. 11,014 ft.; P.B. 10,978 ft., tstd. S.W.; P.B. 10,780 ft.; perf. csg. 10,745-60 ft.; made sqze. job 10,060-70 ft.; perf. csg. 9,685-90 ft.; tstd. S.W.; P.B. 8,921 ft.; perf. csg. 8,994-9,006 ft.; tstd. S.W.; perf. csg. 8,992-97 ft.; tstd. S.W.; made sqz. job; perf. csg. 8,151-71 ft.; tstd. drlg. mud; P.B. 8,108 ft.; drld. cmt. to 8,150 ft.; perf. csg. 8,120-49 ft.; recvd. 2,630 ft. oil, and 708 ft. oil and S.W.; run screen. I.P. 107 B.P.D.; ½-in. ck.
Gulf Ref. Co. No. 5 State, Sec. 17-19s-17e. Loc.
Gulf Ref. Co. No. 6 State, Sec. 17-19s-17e. Drlg. 220 ft.

**Raceland—La Fourche Parish**

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., Sec. 34-15s-19e. 18⅝-in. csg. 262 ft.; T.D. 11,312 ft.; 7-in. csg. 11,312 ft.; S.D.
Amerada Pet. Corp. No. 2 South Coast Corp., Sec. 35-15s-19e. T.D. 12,200 ft.; 4½-in. csg. 10,189 ft.; P.B. 12,164 ft.; perf. csg. 12,049-12,120 ft.; sqzd. perf.; drld. out to 12,135 ft.; perf. csg. 11,840-11,960 ft.; swbd. S.W.; S.D.
Amerada Pet. Corp. No. 3 South Coast Corp., Sec. 34-15s-19e. 11¾-in. csg. 2,698 ft.; T.D. 5,418 ft.; fsg.
Tide Water Oil Co. No. 1-A South Corp., Sec. 34-15s-19e. Drlg. sdy. sh. 9,206 ft.

**Sorrento—Ascension Parish**

Pan American Prod. Co. No. 15 United Ld. Co., Sec. 15-10s-4e. T.D. 1,565 ft.; abd.
Sorrento Pet. Corp. No. 2 White, Sec. 22-10s-4e. T.D. 1,940 ft.; 10¾-in. csg. 1,940 ft.

**South Roanoke—Jeff Davis Parish**

Continental Oil Co. No. 1 Joe Sturdivant, Sec. 36-10s-4w. T.D. 12,088 ft.; set retainer 9,038 ft.; sqzd. with cmt.; drld. out to 9,860 ft.; perf. csg. 9,865-80 ft.; flwg. 307 B.P.D.; ⅞-in. ck.; 52.5 grav.
Union Sulphur Co. No. 2 T. R. S. Farms, Sec. 23-10s-4w. T.D. 10,584 ft.; fsg.

**Gueydan—Acadia Parish**

Buckley et al No. 1 Mulvey Irrig. Co., Sec. 34-11s-1w. Drlg. sh. 1,403 ft.
Burton-Sutton Oil Co. No. 1 Valerean-Simon, Sec. 37-11s-1w. T.D. 1,500 ft.; run 10¾-in. csg.

**Timballer Bay—La Fourche Parish**

Gulf Oil Corp. No. 4 State, sec. 36-23-21e. T.D. 7,373 ft.; T.D. sdtrkd. hole 6,231 ft.; fsg.; P.B. and sdtrkd. 3,501 ft.; T.D. 6,545 ft.; drld. by jnk. to 6,668 ft.; P.B.; 7-in. csg. 6,651 ft.; top salt 7,224 ft.; T.D. 7,268 ft., salt; P.B.

5,400 ft.; perf. csg. 5,330-40 ft.; tstd. 3,504 lbs. press.; reset screen; would not flow; reset screen; wsg. to bttm.

**Valentine—La Fourche Parish**

Wm. Helis et al No. 4 Valentine Sugars, Inc., Sec. 2-17s-20e. Drlg. sh.&L. 4,302 ft.

Pan American Prod. Co. No. 2-A Community, Sec. 58-17s-20e. Drk.

Pan American Prod. Co. No. 2 Ducos-Abriabet, Sec. 10-17s-20e. T.D. 4,510 ft.; P.B. 3,189 ft.; sdtrkd. at 3,208 ft.; tstd. 37 lbs. press.; D.S.T. 3,275-3,303 ft.

**Venice—Plaquemines Parish**

Tide Water Oil Co. No. 2 Buras Lve. Dist., Sec. 23-21s-30e. 13⅜-in. csg. 1,695 ft.; drlg. 250 ft.

**Villa Platte—Evangeline Parish**

Continental Oil Co. No. 2 Haas, Sec. 44-3s-2e. Drlg. sh. 8,830 ft.

Continental Oil Co. No. 1 Phillip Fontenot, Sec. 44-3s-2e. R.U.

Continental Oil Co. No. 1 Adam Tate, Sec. 47-3s-2e. Drlg. sh. 3,044 ft.

Continental Oil Co. No. 2 Tate, Sec. 44-3s-2e. Drlg. sh. 8,834 ft.

Continental Oil Co. No. 2 Vidrine Deville, Sec. 46-3s-2e. Drlg. sh. 8,266 ft.

Texas Co. No. 1 fee, Sec. 27-3s-2e. Drlg. sh. 7,425 ft.

Texas Co. No. 2 fee, Sec. 27-3s-2e. Loc.

**Vinton—Calcasieu Parish**

J. M. Donald et al No. 1 Gordon, Benchenstein-Flynn, Sec. 34-10s-12w. T.D. 1,000 ft.; W.O.C.

**West Gueydan—Vermilion Parish**

Pure Oil Co. No. 1 Vermilion Irrig. Co., Sec. 41-12s-2w. S.D. 9,865 ft.

**Woodlawn—Jeff Davis Parish**

Union Sulphur Co. No. 1 Racca, Sec. 12-9s-6w. Drlg. sh. 50 ft.

## S. LOUISIANA WILDCATS

**Acadia Parish**

Atlantic Ref. Co. No. 1 Klumpp, Sec. 12-7s-2w. T.D. 8,705 ft.; 7-in. csg. 8,698 ft.; perf. csg. 7,960-70 ft.; I.P. 83 bbls. 55.8-grav. dist. per day; ¼-in. ck.

P. D. Freeman No. 2 J. E. Settig, Sec. 17-7s-1w. S.D. 894 ft.; T.A.

Tri Parish Drillers, Inc., No. 1 Paul Stag, Sec. 4-7s-1w. Drk.

Western Gulf Prod. Co., Sec. 16-10s-1w. Loc.

**Assumption Parish**

Humble O. & R. Co. No. 1 Milliken & Farwell Co., Inc., Sec. 79-14s-14e. Drk.

**Avoyelles Parish**

Magnolia Pet. Co. No. 1 W. G. Bowden, Sec. 7-2s-4e. Drlg. L.&sh. 7,846 ft.

**Beauregard Parish**

Republic Prod. Co. No. 1 Lutcher Moore Lbr. Co., Sec. 14-7s-12w. Drlg. sh. 6,210 ft.

**Calcasieu Parish**

Sun Oil Co. No. 2 Lutcher-Moore, sec. 12-8s-13w. T.D. 2,019 ft.; 13⅜-in. csg. 1,996 ft.; drlg. sh. 8,895 ft.

Wheeler Oil Corp. No. 2 Sch. Ld., Sec. 16-9s-7w. 15½-in. csg. 46 ft.; 10¾-in. csg. 1,299 ft.

**Cameron Parish**

Federal Royalty Co. No. 2 State-Calcasieu Lake, Twp. 13s-9w. Loc.

Humble O. & R. Co. No. 2 K. B. Hanzen, 466 ft. S and E. NW cor. SW¼ Sec. 9-12s-6w. T.D. 11,693 ft.; P.B. 11,384 ft.; prep. to perf. csg. in gas sd.

Pure Oil Co. No. 3 Calcasieu Natl. Bnk., Sec. 19-12s-4w. Bldg. drk.

Union Sulphur Co. No. 3 Miami Corp., Sec. 33-12s-8w. (Willow Lake area). T.D. 9,867 ft.; abd.

**Iberville Parish**

California Co. No. 1 Schwing Lbr. Co., Sec. 96-10s-10e. Loc.

**La Fourche Parish**

Texas Co. No. 1 La Terre, Sec. 1-20s-21e. T.D 8,898 ft.; 9⅝-in. csg. 8,898 ft.; T.D. 11,135 ft.; 2,509 ft. 6⅝-in. csg. 11,135 ft.; perf. csg. 9,975-10,005 ft.; tstd. 21 stnds. dist.; P.B.

Texas Co. No. 1 State-Catfish Lake, Sec. 77-19s-21e. Loc.

**Orleans Parish**

W. T. Burton No. 2-B Faubourg de Montluzin, Sec. 1-10s-13e. Drlg. sh. 8,050 ft.

W. T. Burton No. 1-B R. E. E. de Montluzin, Sec. 1-10s-13e. Drk.

W. T. Burton No. 1 State-Lake Pontchartrain, Twp. 10s-13e. T.D. 8,367 ft.; P.B. 7,775 ft.; sdtrkd. at 7,959 ft.; T. D. 8,165 ft.; 9⅝-in. csg. 8,165 ft.; T.D. 8,241 ft.; tstd. S.W.; D.S.T. 8,135-8,241 ft.

**Rapides Parish**

J. J. Farrell No. 1 W. P. Aertker, Sec. 16-4n-1e. Drk.

E. F. Kalb et al No. 1 Lee Lbr. Co., Sec. 9-5n-3e. S.D. 140 ft.

**St. Bernard Parish**

Gulf Ref. Co. No. 4 State-R.R. (Lake Borgne), Twp. 12s-15e. Drlg. sd. 3,541 ft.

**St. James Parish**

Shell Pet. Corp. No. 1 Shexnayder, Sec. 38-12s-15e. Bldg. road.

**St. John the Baptist Parish**

Shell Pet. Corp. No. 1 Godchaux, Sec. 97-11s-7e. T.D. 11,005 ft.; perf. csg. 8,925-35 ft.; making sqz. job.

**St. Landry Parish**

Herton Oil Co. et al No. 1 Thistlephlite Lbr. Co., Sec. 60-4s-4e. Drlg. sh. 9,940 ft.; well tried to blow out at 7,000 ft.

**St. Martin Parish**

Shell Pet. Corp. No. 1 Hazel Burdin, Sec. 15-14s-12e. T.D. 8,461 ft.; oil sd.; rng. elec. survey.

Texas Co. No. 6 State Lake Mongoulois, Sec. 10-10s-9e. Drlg. sh. 9,752 ft.

Texas Co. No. 11 St. Martin Ld. Co., Sec. 21-8s-7e. Top salt 8,904 ft.; T.D. 9,404 ft.; 7-in. csg. 8,912 ft.; P.B. 7,175 ft.; drld. out to bttm.; using hole for geophysical work.

**St. Tammany Parish**

A. P. Portas No. 1 W. C. Forbes, sec. 33-7s-15e. Drk.

**Terrebonne Parish**

Shell Pet. Corp. No. 1 Peters, Sec. 73-18s-18e. T.D. 10,967 ft.; sdy. sh.; circ.

Texas Co. No. 1 Continental Ld. & Fur Co., Sec. 29-18s-14e. 18⅝-in. csg. 101 ft.; drlg. sh. 9,620 ft.

Texas Co. No. 2 State-Coon Point, Twp 23s-14e. Driving piling.

**Vermilion Parish**

Stanolind O. & G. Co. No. 2 F. Stovall Sec. 88-14s-3e. Drlg. sh. 1,978 ft.

## SOUTH MISSISSIPPI

**George County**

Ryan & Anderson No. 1 J. J. Newman, Sec. 9-1s-8w. S.D. 7,015 ft.

**Wilkinson County**

La. Crusader Oil Co. No. 2 Miss-Wiss Tbr. & Ld. Co., Sec. 35-4n-1w. Cg. sh. 3,384 ft.

## NORTH MISSISSIPPI

**Calhoun County**

L. C. Lucas No. 1 E. C. Boland, 400 ft. E and 500 ft. S, NW cor. SW Sec. 9-22n-9e. S.D. 751 ft.

S. & O. Properties, Inc., No. 1 G. C. Cooned, SE NE sec. 12-24n-8e. T.D. 2,300 ft., rd. bds.; S.D.

**George County**

Cleve Love et al No. 2 J. J. Newman Lbr. Co., C SW Sec. 9-1s-8w. Drlg. ch. 6,500 ft.; no report.

**Harrison County**

Big Ridge Oil Co. No. 1 Hingin, sec. 13-7s-10w. S.D. 2,700 ft.

**Hinds County**

G. Jefferies No. 1 Gaddis Farms, Inc., 700 ft. W line, 545 ft. N line, SE¼ Sec. 26-7n-4w. S.D.; Wilcox 3,448 ft.

Cleve Love et al No. 1 S. F. Johnson, NE cor. SE¼ sec. 29-6n-1w. Set 7-in csg. 3,355 ft.; T.D. 3,802 ft.; installing blow-out preventer.

Southern Nat. Gas Co. No. 1 Progressive Realty Co., SE SW Sec. 35-6n-4w. Top chk. 6,600 ft.; drlg. sh. 7,700 ft.

**Montgomery County**

Dr. T. H. Chichester No. 1 Mitchell, Sec. 36-20n-7e. Drk.

**Pontotoc County**

Chas. Croder No. 1 John B. James, Sec. 24-11s-6w. S.D. 15 ft.

Waldrop et al No. 1 Bray, Sec. 17-11s-1e. S.D. 310 ft.

**Simpson County**

Goodwill O. & G. Co. No. 1 Berry, sec. 33-2n-4e. S.D. 2,810 ft.

Cleve Love No. 1 N. E. Garner, SE cor SW NE Sec. 1-10n-17w. T.D. 27 ft.; S.D.

**Yalobusha County**

Acme Holding Co. No. 1 S. D. Boyle, NW NW Sec. 33-25n-7e. S.D. 2,790 ft.

## FLORIDA

**Levy County**

Florida Oil Discovery No. 2 Cedar Key Co., Sec. 9-15s-13e. S.D. for csg.; T.D. 3,986 ft.

**Nassau County**

St. Mary Oil Corp. No. 1 Hilliard, Sec. 19-4n-24e. T.D. 4,250 ft.; rmg.

**Lake County**

Union O. & R. Co. No. 1 Gulf Explr., sec. 17-24s-25e. S.D. 235 ft.

**Suwanne County**

J. W. Phillips Oil Explrn. Co. No. 1 Shilkett, Sec. 14-4s-14e. S.D. 50 ft. for csg.

# TEXAS

Week Ending October 22

## GULF COAST FIELDS

**Hastings Field—Brazoria County**

W. L. Goldston No. 3 fee, B.B.B.&C. Sur. Drlg. sh. 5,836 ft.

Humble O. & R. Co. No. 11 W. H. Shindler, H.T.&B. Sur. No. 30. T.D. 6,081 ft.; W.O.C.

Stanolind O. & G. Co. No. 2-C Cecil Brown, W. H. Snyder Sur. Drk.

Stanolind O. & G. Co. No. 12 Grote, Wm. Henry Sur. T.D. 5,253 ft.; perf. csg. 5,151-73 ft.

**Old Ocean—Brazoria County**

Commerce Oil Co. No. 1 S. M. Patterson, Polly & Chance Sur. Loc.

Harrison & Abercrombie No. 3 Armstrong Plantation, Polley & Chance Sur. S.D. 8,878 ft.

Harrison & Abercrombie No. 2 Chenault, C. Breen Sur. Drlg. sh. 7,212 ft.

Harris & Abercrombie No. 1 Fidelty O. & R. Co., Polly & Chance Sur. Drlg. sd.&sh. 9,736 ft.

Harrison & Abercrombie No. 1 Fisher and Larsen, C. Breen Sur. T.D. 10,258 ft.; tstg.

Harrison & Abercrombie No. 1 R. D. McDonald, C. Breen Sur. Loc.

Sun Oil Co. No. 1 Campbell, Chas. Breen Sur. R.U.

**Sandy Point—Brazoria County**

Stanolind O. & G. Co. No. 4 Sharp, C. S. Gorbett Sur. No. 12. Drlg. sh. 2,310 ft.

**West Columbia—Brazoria County**

Fros & Dunnam No. 2 Masterson, G. Tennille Sur. T.D. 5,332 ft.; tstg.

General Crude Oil Co No. 1 Campbell Est., J. H. Bell Sur. Drlg. sh. 4,678 ft.

Hogg Bros. No. 4 fee, M. Varner Sur. Drlg. sh. 5,036 ft.

Texas Co. No. 28 Abrams, G. Tennille Sur. T.D. 5,695 ft.; run 7-in. csg.

Texas Co. No. 4 Rebecca Goldman, G. Tennille Sur. Drlg. sh. 4,510 ft.

D. M. Wallace No. 3 Smith, G. Tennille Sur. Drlg. sh. 2,930 ft.

**Cedar Point—Chambers County**

Standard Oil Co. of Tex. et al No. 5-118 State. Drlg. sdy. sh. 4,479 ft.

**Seabreeze—Chambers County**

Sun Oil Co. No. 5 Acom, H.T.&B. Sur. No. 103. Bldg. road.

Sun Oil Co. No. 1 Tate, H.T.&B.R.R Sur. T.D. 8,634 ft.; P.B. 2,000 ft. to sdtrk. at 2,609 ft.; drlg. sh.&L. 5,830 ft.

**Turtle Bay—Chambers County**

Stanolind O. & G. Co. No. 1-38 State (6,000 ft. S of field in Turtle Bay). 10¾-in. csg. 1,212 ft.

**Hitchcock—Galveston County**

Maco Stewart No. 8 fee, J. Spillman Sur. R.U.

**Bammel—Harris County**

H. M. Lawrence and Geo. Lawrence No. 1 C. Ehrkardt, H. Simmons Sur. R.U.

**Clinton—Harris County**

Stanolind O. & G. Co. No. 2 Edwards Reels & Trobough Sur. Drk.

**Eureka—Harris County**

Jack Frazier No. 1 Emma Helberg, J. Reinerman Sur. R.U.

Jack Frazier No. 2 Hogg Bros., J. Reinerman Sur. 10¾-in. csg. 2,505 ft.; T. D. 7,762 ft.; cd. sd. 7,728-60 ft.

Houston Oil Co. No. 3 Helberg & Lackner, J. Reinerman Sur. Loc.

Means & McGehee No. 1-E Laura Lackner, H. Reinerman Sur. Loc.

Tide Water Asso. Oil Co. No. 1 H. H. Ford, J. Reinerman Sur. S.D. 8,113 ft.

**Fairbanks—Harris County**

Amerada-Stanolind O. & G. Co. No. 2 J. P. Dawson. 9⅝-in. csg. 1,228 ft.; T.D. 6,848 ft.; perf. csg. 6,836-44 ft.

Amerada-Stanolind O. & G. Co. No. 1 Louis, G. Williams Sur. Drlg. 1,310 ft.

Amerada-Stanolind O. & G. Co. No. 1 Pastusek, J. Clarkson Sur. Cg. 6,820 ft.

Amerada-Stanolind O. & G. Co. No. 1 Emmott, J. Waugh Sur. T.D. 6,850 ft.; tstg.

Amerada-Stanolind O. & G. Co. No. 2 Peters, W. K. Hamblin Sur. and Hogan Sur. R.U.

Amerada Pet. Corp. and Stanolind O. & G. Co. No 3 Smith, J. Waugh Sur Perf. csg. 6,840-50 ft.; tstg.

Amerada-Stanolind O. & G. Co. No. 2 White, Jas. Clarkson Sur. R.U.

Bridwell O. & G. Co. No. 1 Gibson, Geo. Ayers Sur. T.D. 6,860 ft.; 5½-in. csg. 6,800 ft.; perf. csg. 6,851½-55½ ft.; S.I.; no ga.

Bridwell Oil Co. No. 2 Gibson, G. Ayers Sur. T.D. 6,855 ft.; tstg.

E. M. Halley No. 1 Albert Brown, J. Clarkson Sur. Loc.

Houah & Thompson No. 1 Bennett O. & G. Co., G. S. Reid Sur. T.D. 6,852 ft.; tstg.

Noble & Baker et al No. 1 A. R. Hillegeist, J. Clarkson Sur. Drk.

Sinclair Prairie Oil Co. No. 1 W. W. Goodykoontz, Wiley S. Powell Sur. 9⅝-in. csg. 1,321 ft.; cg. sh. 3,720 ft.

H. E. Williams et al No. 1 Deacon, M. McFarland Sur. Drlg. sh. 1,312 ft.

**Friendswood—Harris County**

Humble O. & R. Co. No. 14 Gray, Perry & Austin Sur. T.D. 6,040 ft.; W.O.C.

Humble O. & R. Co. No. 4 Herman Hospital, T. Choate Sur. Drlg. L. 4,310 ft.

Humble O. & R. Co. No. 1 J. L. Jones, Perry & Austin Sur. Drk.

Humble O. & R. Co. No. 4 Ross, T. Choate Lge. Sur. Drlg. sh. 5,360 ft.

Humble O. & R. Co. No. 3 Settegast, T. Choate Sur. Drk.

Humble O. & R. Co. No. 1 E. E. Watson. Drk.

Humble O. & R. Co. No. 2 Wood, W. D. C. Hall Sur. Cg. sd. 6,068 ft.

**Cordele—Jackson County**

Magnolia Pet. Co. No. 3 Drushel, I.&G. N.R.R. Sur. T.D. 2,679 ft.; 7-in. csg. 2,673 ft.

H. J. Porter No. 1 Woussi, Peter White Sur. Loc.

Trinity Drlg. Co. No. 1 Drushel, I.&G. N. Sur. Drlg. sd.&sh. 778 ft.

**Clam Lake—Jefferson County**

Shell Pet. Corp. No. 3 McFaddin, S. A. Pace Sur. 10¾-in. csg. 1,532 ft.; T.D. 6,122 ft.; rmg.

**Cheek—Jefferson County**

Shell Pet. Corp. No. 1 Ed. Pleasant, C. Hildebrand Sur. T.D. 7,726 ft.; tstd. oil on D.S.T. 7,711-21 ft.; P.B. 7,725 ft.; flwg. 36 obls. dist. daily through ¼-in. ck.; killed well; perf. csg. 7,717-20 ft.; flwg. 16 B.P.D.; ¼-in. ck. killed with wtr.; P.B. 7,698 ft.; P.B. 7,721 ft.; perf. csg. 7,720-22 ft.; swbg.

**LaBelle—Jefferson County**

Sun Oil Co. No. 4 Broussard-Hebert, B. Blackman Lge. T.D. 8,675 ft.; 7-in. csg. 8,605 ft.; pmpg. wtr. into hole to kill press. in No. 3 Broussard; made sqz. job; dpnd. 8,680 ft.; fsg. for D.P.

**Hardin—Liberty County**

Atlantic Ref. Co. No. 1-B Johnston-Finley, H. B. Johnston Sur. T.D. 7,637 ft.; perf. csg. 7,628-35 ft.

Geo. Echols No. 2 West, H. B. Johnston Sur. Drlg. sh. 5,712 ft.

N. C. Ginther No. 1 West, A. B. Hardin Sur. 9⅝-in. csg. 1,837 ft.; drlg. sh. 5,930 ft.

Gulf Oil Corp. No. 4 Cessna, H. B. Johnston Sur. R.U.

Humble O. & R. Co. No. 4 Chambers, A. B. Hardin Sur. Drlg. sh. 7,537 ft.

Tide Water Asso. Oil Co. No. 3 Cessna, A. B. Hardin Sur. Drlg. sh. 4,736 ft.

**Bay City—Matagorda County**

Hamman Explrn. Co. No. 3 Crooker, E. Hall Sur. Drlg. sh. 9,039 ft.

Hamman Explrn. Co. No. 2 Foote, E. Hall Sur. Drlg. 6,510 ft.

**McCrosky—Matagorda County**

Pierce Est. No. 5 fee, David Fenton Lge. Cd. oil sd. 6,603-04 ft.; abd.

**North McFaddin—Matagorda County**

Ohio Oil Co. No. 1 Carlson, I.&G.N. Sur. No. 2. Drlg. sh.&L. 5,456 ft.

**Orange—Orange County**

Continental Oil Co. No. 17 Chesson, Wm. Dyson Sur. 10¾-in. csg. 1,014 ft.; cd. oil sd. 5,544-66 ft.; run csg.

Gulf Oil Corp. No. 1 La Fleur, Wm. Dyson Sur. Drlg. sh. 4,767 ft.

Gulf Oil Corp. No. 2 Orange Natl. Bnk., Wm. Dyson Sur. Cg. 5,910 ft.

John G. Mayo No. 1 Seales, Wm. Dyson Sur. Bldg. drk.

Red Bank Oil Co. No. 3 Michel, Wm. Dyson Sur. T.D. 5,826 ft.; perf. csg. 5,570-80 ft.

Ryan & Andrews No. 1 Peveto, Wm. Dyson Sur. Cg. 5,730 ft.

**Segno—Polk County**

J. K. Dorrance No. 4-A Wing, I.&G.N. Sur. No. 14. T.D. 8,332 ft.; W.O.C.

Gulf Oil Corp. No. 14 Wing, I.&G.N. Sur. No. 14. Drlg. sd. 7,886 ft.

**Spurger—Tyler County**

Republic Prod. Co. No. 13 Hurd, N. Hurd Sur. Cg. sdy. sh. 7,639 ft.

## GULF COAST WILDCATS

**Brazoria County**

Fabriguze et al No. 1 Freeport Sulphur, Stephen F. Austin Sur. (Bryan Mound). M.I.M.

Humble O. & R. Co. No. 1 Masterson, Geo. Robinson Sur. R.U.

Normandie Oil Co. No. 1 M. A. Ramsey, H.T.&B. Sur. Cg. 6,710 ft.

Texas Co. No. 1 E. F. Davis, Sec. 36, T. Spraggins Sur., 3,900 ft. SE of Manvel field. 10¾-in. csg. 1,314 ft.; drlg. sd.&sh. 5,167 ft.

**Chambers County**

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.

F. A. Gillespie et al No. 1 Kirby Lbr. Co., Chambers Co. Sch. Ld. Sur. T.D. 6,523 ft.; 5½-in. csg. 6,471 ft.; perf. csg. 6,415-34 ft.; flwg. oil and wah. wtr.; well went dead; screen sanded up; M.I.R. to reperf. csg.

Salt Dome Oil Corp. No. 1 Ogden, E. Douthit Sur. 10¾-in. csg. 1,640 ft.; T.D. 8,149 ft.; 5½-in. csg. 7,608 ft.; perf. csg. 7,515-25 ft.; flwd. 5 bbls. dist., 12 bbls. S.W. per day; ¼-in. ck.

**Galveston County**

F. J. Anderson No. 1 L. Lobit, Lot A Subd. No. 6, J. M. Perry and E. M. Austin Lges. 10¾-in. csg. 2,520 ft.: T.D. 9,197 ft.; 7-in. csg. 9,197 ft.; tstg.
Sun Oil Co. No. 1 R. U. Humphrey, Ruben Barrow Sur. 16-in. csg. 122 ft.; 10¾-in. csg. 2,042 ft.; drlg. sh. 2,067 ft.

**Harris County**

Continental Oil Co. et al No. 1 J. J Sweeney, Sec. 5, W.C.R.R. Sur. 10¾-in. csg. 1,026 ft.; cg. sh. 7,630 ft.
Jack Frazier et al No. 1 Delbert R. Lang, Reuben White Sur. 10¾-in. csg. 795 ft.
Jack Frazier et al No. 1 Griffith, Adams Smith Sur. M.I.M.
H. H. Givens No. 2 F. K. Adone, David Middleton Sur. Drk.

**Jackson County**

Chapman Minerals Corp. No. 1 Bennett ranch, Valentine Garcia Sur. Loc.
Texas Co. No. 1 J. F Weed, John D Newell Sur. Cg. 7,336 ft.

**Jefferson County**

British American Oil Prod. Co. et al No. 1 Gladys City, J. A. Veatch Sur (SW flank of Spindletop). Drlg. sh. 4,755 ft.
I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.
Humble O. & R. Co. No. 1 M. C. Todd, Wm. Carr Sur. Drlg. sd.&L. 127 ft.

**Matagorda County**

Maja Oil Co. No. 1 Robbins, A. Sheppard Sur. R.U.

**Montgomery County**

Deep South Pet. Corp. No. 1 Foster Lbr. Co., Preyor Bryan Sur. 10¾-in. csg. 700 ft.; drlg. sh. 7,375 ft.; no report.
Housh & Thompson No. 1 E. B. Clary, Wm. S. Allen Sur. Spd.
Jack Frazier No. 1 Chase Natl. Bnk., D Garrett Sur. 10¾-in. csg. 1,700 ft.; drlg. sh. 8,436 ft.
Mills Bennett Prod. Co. No. 1 Victoria Griffin, Archibald Lge. 10¾-in. csg. 1,512 ft.; drlg. sh. 8,177 ft.
J. Smith et al No. 1 J. V. Scott, F. A. B. Wheeler Sur. S.D. 380 ft.

**Orange County**

Sun Oil Co. No. 1 Lutcher-Moore Lbr Co., B. Johnson Sur. Cg. sh. 7,827 ft.

**Waller County**

Stanolind O. & G. Co. No. 1 Seymour, H.&T.C. Sur. No. 80. 9⅝-in. csg. 2,497 ft.; T.D. 7,400 ft.; perf. csg.
Stanolind O. & G. Co. No. 1 J. J. Sweeney Est., T. S. Reese Sur. No. 110, 2,640 ft. E of No. 1 Freeman in Katy gas field. T.D. 7,500 ft.; perf. csg. 7,310-40 ft.; tstg.

**Wharton County**

Humble O. & R. Co. No. 1 Duncan, A. Edgar Sur. 13⅜-in. csg. 2,366 ft.; drlg. L. 6,976 ft.

## S. W. TEXAS WILDCATS

**Aransas County**

Housh-Thompson, Inc., et al No. 1 Kent-Crane, Wm. M. Carner Sur. 10¾-in. csg. 960 ft.; abd. 7,520 ft.

**Atascosa County**

R. C. Stanley No. 1 Schumann, Simon Malone Sur. No. 1069. T.D. 1,700 ft.; rng. csg.

**Bastrop County**

Ira Brown No. 1 T. W. Bailey, John Crutchfield Sur. No. 12. Loc.
R. C. Franklin No. 2 Yarrington, Jose Manuel Bangs Sur. T.D. 2,041 ft.; rng. csg.
A. H. Tarver No. 1 McDuff, Josiah Wilbarger Sur. No. 5. R.U.
A. H. Tarver No. 1 Rivers, Jonathan Burleson Sur. No. 25. T.D. 2,271 ft.; abd.
Paul Texas and Ashby No. 1 J. T. Grizzard, Andrew Graham Sur. D.S.T. 7,088-23 ft.: recvd. 1 thrib. of mud; S. S.O.; S.D. 7,177 ft.; W.O. csg.

**Bee County**

Aid et al No. 2 Imogene Hall, Geo. Kerr Sur. T.D. 3,598 ft.; perf. csg. 3,582-88 ft.; tstd. est. 2,000,000 ft. gas; ¼-in. ck.
J. R. Bunn and J. G. Mayo No. 1 Sparkman, Asa Walker Sur. Cg. sh. 3,970 ft.

**Bell County**

M. M. Gordon No. 1 Steele, Oliver T. Tyler Sur. S.D. 1,201 ft.
G. P. Shelton et al No. 1 Nelson, Michael Griffin Sur. S.D. 435 ft.

**Bexar County**

M. S. Blackburn No. 1 Miller, Thos. Barwick Sur. No. 324. S.O. 151-225 ft.; T.D. 440 ft.; fsg.
Lewis Ridder No. 1 fee, Jose Maria Barrera Sur. Loc.
B. Soltner No. 1 fee, Stephen Jett Sur. Drlg. 618 ft.

**Blanco County**

D. M. Johnston No. 1 Glasscock, W. W. McDonald Sur. No. 50. 10-in. csg. 150 ft.; S.D. 501 ft.

**Caldwell County**

R. H. Dye No. 1 Voight, Wm. Watkins Sur. T.D. 1,990 ft.; to D.D.
Lincoln Pet. Co. No. 1 Withers, Wm. House Sur. R.U.
Wiegand Bros. et al No. 1 O'Daniel, Robt. H. Hunter Sur. T.D. 2,403 ft.; abd.

**Calhoun County**

Hiawatha O. & G. Co. No. 2 J. J. Roemer, J. Ogesberry Sur. Drlg. sh. 8,976 ft.

**De Witt County**

Marjo Oil Co. No. 1 W. D. McCurdy, John Hunt Sur. S.D. 150 ft.

**Duval County**

W. H. Appell No. 1 Hagist, B.S.&F. Sur. No. 265. Drk.
Joe Gier and Smith & Storey No. 1 W. R. Peters, A.B.&M. Sur. No. 175. T.D. 2,728 ft.; abd.
Frank Gravis No. 2 Schallert, Seale, Morris & Seale Sur. No. 255 (Palagana salt dome). S.D. 3,452 ft.
Magnolia Pet. Co. No. 1 Duval Co. Rch. Co., E. Barrera Sur. No. 48. Drlg. sh. 3,136 ft.
S. K. & C. et al No. 1 J. F. Welder, Nathaniel Tinsley Sur. No. 103. R.U.
F. P. Schwab No. 1 Welder, Sur. No. 103. 10¾-in. csg.
Texas Inland Corp. No. 1 Alice Adami, Arnold & Barrett Sur. No. 47. Loc.
R. A. Thompson No. 1 Parr, Julia Rogers Sur. No. 118. Cd. sd.&sh., O.S. 4,915-24 ft.; rmg. to make D.S.T.
W. A. Wagner No. 1 D. J. Weikel, John H. Gibson Sur. No. 497. R.U. and S.D.

**Edwards County**

Evans & Love No. 1 Steve Brown, Blk 6, G.W.T.&P. Sur. S.D. 6,261 ft.

**Frio County**

Humble O. & R. Co. No. 1 Houston et al, M. Rips Sur. 10¾-in. csg. 1,300 ft.; drlg. plug.
Humble O. & R. Co. No. 1 Schley, Jos. Travaider Sur. No. 174. 15-min. D.S.T. 3,520-51 ft. tstd. no press.; recvd. 175 ft. mud with oil odor and 180 ft. S. W.; 15-min. D.S.T. 3,595-3,617 ft. tstd. 45 ft. of mud, S.S.O.; recvd. 2,500 ft P.L.O.; D.S.T. 4,720-85 ft.; recvd. 396 ft. sulf. wtr.; D.S.T. Edw. L. 5,271-5,304 ft.; P.B. to 4,800 ft.; 7-in. csg. 4,699 ft.; swbg. 1½ B.O.P.H. plus small amt. of wash wtr. and acd.; P.O.P.; tstg.
Geo. Smith No. 1 Berry, T.C.R.R. Sur. No. 1. R.U.; drlg. wtr. well.

**Goliad County**

J. A. English No. 1 Weiss, Cornelius Litts Sur. Drk.
Steinberge Pet. Corp. No. 1 Albrecht, T. Hancock Sur. Drlg. sh. 4,696 ft.
Sun Oil Co. No. 1 Lee Homer, John Payne Sur. Cg. 8,116 ft.

**Gonzales County**

Hochheim Dev. Trust No. 1 Dubose, E. G. Coffman Sur. 10-in. csg. 37 ft.; S.D. 40 ft.
John Hueners et al No. 1 Bauer, R. E. Brown Sur. Drlg. 120 ft.

**Guadalupe County**

R. Hamill No. 2 Zuehl, Vicente Duran Sur. Drlg. 520 ft.
A. D. King No. 1-A Rosenbrock, Vincente Duran Sur. No. 4. T.D. 1,854 ft.; run csg.
Marts and Beaven No. 1 Glenwinkle Wakefield and Stewart Sur. T.D. 2,525 ft.; abd.
Pegg Bros. et al No. 3 Maierhoffer, L. H. Peters Sur. No. 50. Drlg. sh. 960 ft.
R. A. Williams No. 1 Weber, Guadalupe Torres Sur. Drlg. sh. 1,473 ft.

**Hidalgo County**

R. E. Hardin et al No. 1 E. M. Car Hidalgo Co. Canal Subd., Lot 8, Blk 8. Cg. sh. 7,385 ft.
Phillips Pet. Co. No. 1 Flores (deep test N of Samfordyce field). T.D. 5,860 ft.; cmtd. 7⅝-in. csg. 5,847 ft. (protection string); cg. sh. 9,026 ft.
Union Sulphur Co. No. 1 Am.-Rio Grande Ld. & Ir. Co. (Mercedes). Cmtd. 7-in csg. 8,417 ft.; T.D. 9,618 ft.; 5½-in. lnr. set 8,369-9,618 ft.; tstd. S.W 9,420-30 ft.; made sqze. job; P.B. 9,390 ft.; perf. csg. 9,372-80 ft.; swbd. S.W and gas; perf. csg. 9,347-52 ft.; tstd S.W.; perf. csg. 9,255-60 ft.; tstd. S. W.; perf. csg. 9,065-70 ft.; tstd. S.W.; perf. csg. 8,990-9,000 ft.; tstd. S.W.; perf. csg. 8,920-25 ft.; tstd. S.W.; perf. csg. 8,845-50 ft.; flwd. 24 bbls., 51-grav. dist. per day; ⅝-in. ck.; killed to reperf.; sqz. off perf.; prep. to test 8,500-10 ft.

**Jim Hogg County**

Charles R. Fox No. 1 Canales, Marcelo Ynojosa gr. T.D. 5,333 ft.; rmg. to make D.S.T.
Humble O. & R. Co. No. 3 Anna Kelsey Bass, San Raphel gr., 3,732 ft. N of Kelsey field discovery well. Spd.; no report.
Navarro Oil Co. No. 1 Guerra, Santa Teresa gr. (7,000 ft. SW discovery, Kelsey field). Loc.

**Jim Wells County**

Magnolia Pet. Co. No. 1 Moreno, La Trinidad gr. Drlg. sh. 2,637 ft.
Magnolia Pet. Co. No. 1 Romano, V. de Garcia Las Animas Sola gr., 1,126 ft. E of discovery well. Cd. sd., gas odor, 6,421-26 ft.; T.D. 8,302 ft.; rng. csg. to test gas sd. 6,421-26 ft.
Presnall & Tsesmelis No. 1 Hoffman, Marcellino Lopez Sur. Drlg. 5,312 ft.
Shell Pet. Corp. No. 1 C. H. Von Blucher, Lucinda Best Sur. T.D. 7,318 ft.; fsg.
Transwestern Oil Corp. No. 1 B. H. Dunlap, Sur. 178-181 (1½ mi. SW East Premont field). 18⅝-in. csg. 485 ft.; T.D 5,107 ft.; sdtrkd.; T.D. 5,194 ft.; 8⅝-in. csg. 5,168 ft.; cg. 6,500 ft.

**Karnes County**

M. W. Brown et al No. 1 Yanta, S. G. Hardaway Sur. R.U.
Suttle et al No. 1 McKinney, Luz Navarette Sur. Loc.

**Kendall County**

Carpenter No. 1 Seidensticker, A. Rodriquez Sur. No. 257. Drlg. 367 ft.
C. M. Dewey No. 1 Seidensticker, J. M. Cherino Sur. No. 18. Drlg. sh. 290 ft.
H. N. Reid No. 1 Marguardt, J. Travus Sur. No. 150½. Drlg. 673 ft.

**Kerr County**

H. C. Starkey No. 1-A Saue, T.W.N.G. R.R. Sur. S.D. 100 ft.

**Kimble County**

Plateau Oil Co. No. 1 E. E. Bolts, S Jones Sur. T.D. 1,901 ft.; pmpg.; showing little oil; may acd.
Plateau Oil Co. No. 1 S. J. Davis, N. Mitchell Sur. No. 44. S.D. 910 ft.
Plateau Oil Co. No. 1 Hunger, J. Duine Sur. T.D. 1,800 ft.; 7-in. csg. 1,765 ft.

**Kinney County**

C. B. Wardlaw No. 1 Standart, Meliton Valdez gr. S.D. 1,290 ft.; W.O. large rig.

**Kleberg County**

Pure Oil Co. et al No. 1 State Ld., Tr. 68, Laguna Madre Bay, Lse. No. 528 T.D. 9,350 ft.; sdtrkd. 8,268 ft.; drlg. sh. 8,768 ft.

**La Salle County**

Lake-Tobian Oil Co. No. 1 O'Connor ranch. Blk 35, Bland & Nelson subd Drlg. lignite 1,343 ft.

**Lavaca County**

A. C. McCord et al No. 1 Cora Russek, Blk. 33, J. C. Reynolds Sur. (S. of Ezzell). Spd. and S.D.
Navarro Oil Co. et al No. 1 Brom, Wm. Strode Sur. Loc.

**Lee County**

Fred Pederson et al No. 1 Brown, David Hudson Sur. Drlg. ck. 5,674 ft.

**Live Oak County**

R. H. Feitner No. 1 Reed, I.&G.N. R.R. Sur. 15. R.U.
Hanna et al No. 2 West, C. O. Ragland Sur. S.D. 4,356 ft.
Holland Oil Co. No. 1 Wallace, Cameron Co. Sch. Ld. Sur. S.D. 200 ft.; (cor.).
Luling O. & G. Co. et al No. 1 Northern Royalty Corp., Thos. Castillo Sur. R.U.
S. K. & C. Drlg. Co. No. 1 Etta Terrell, W. Daniel O'Boyle Sur. Drlg. 315 ft.

**McMullen County**

Barbara Oil Co. No. 1 Edrington, A.B.& M. Sur. No. 79. Cg. 2,710 ft.
Cities Service Oil Co. No. 1 Reed, John Koepff Sur. T.D. 1,545 ft.; abd.
Mid-Western Pet. Corp. No. 2 Byrne, Geo. Pittuck Sur. No. 7. Drlg. sh. 30 ft.
Scarborough & Biglane No. 1 Matuis Emmitt, Jas. Garner Sur. No. 6. T.D. 880 ft.; C.O.
Shumway & Burns No. 2 Shiner, Sec. 53 of Shumway subd. of Shiner rnch. R.U.
Taylor Ref. Co. No. 1 Nueces Ld. & Lvstk. Co., B.S.&F. Sur. No. 115. Loc.

**Maverick County**

Rio Dev. Co. No. 5 State Bnk. & Trst. Co., G.C.&S.F.R.R. Co. Sur. No. 1. Drlg. 61 ft.
Wellington Oil Corp. and Humble O. & R. Co. No. 1 Indio Cattle Co., Antonio Revas gr. T.D. 3,223 ft.; fsg.

**Medina County**

A. D. Gaston No. 1 Rogers, Henry Wilson Sur. S.D. 872 ft.
Victor Ziegler No. 1 Paul Haby, Wm. G. Still Sur. No. 1. T.D. 81 ft.
Ziegler et al No. 1 Wiemers, F. Thurmm Sur. S.D 905 ft.

**Nueces County**

Phillips Pet. Co. No. 1 Masten, Blk. 146. Delores I. & A. Co. Sur. Drlg. sh. 6,407 ft.
Seaboard Oil Co. No. 1 Ellen C. Wilson, Jose Vicente Lopez de Herrera gr. Prep. to spud.
Stanolind O. & G. Co. No. 1 Geo. R. Clark, Nueces Co. Winter Vegetable Gardens. Loc.
Texas Co. No. 1 E. Little et al, Wm. Little Sur. 10¾-in. csg. 1,174 ft.; T.D. 7,746 ft.; fsg.
Union Prod. Co. No. 1 Minnie Brown (Agua Dulce area). Drlg. sh. 11,526 ft.

**Real County**

Blakely Smith et al No. 1 Love Ranch, H.E.&W.T.R.R. Co. Sur. R.U.

**Refugio County**

Darby Pet. Co. No. 1 Rooke, J. M. and G. Cobian Sur. 10¾-in. csg. 1,560 ft.; perf. csg. 5,902-05½ ft.; comp.; no ga.
Geophysical Service Co. No. 1 Spaulding, Sec. 3, Aldrete Sur. T.D. 5,920 ft.; drlg. sdy. sh. 5,320 ft.
G. S. I. et al No. 1 Yarrow, Aldrete 6½ Lge. (LaRosa field). Drlg. sh. 4,230 ft.
J. W. Heard et al No. 1 Hudson, Esteban Lopez Sur. Cg. sd. 5,389 ft.
Rutherford Oil Corp. No. 1 H. A. Schirmer, Sec. 1, Aldrete Sur. Cd. S.W. sd. 5,924-30 ft.; T.D. 6,331 ft.; recvd. 600 ft. oil; D.S.T. 6,322-27 ft.; T.D. 6,513 ft.; 7-in. csg. 6,396 ft.

**San Patricio County**

Frank Grote et al No. 1 F. G. Carlock, Eliz. Tally Sur. A-261. 10¾-in. csg. 1,119 ft.; T.D. 7,143 ft.; tstg.
Illinois Pet. Co. No. 1 Wilson, Blk. 9, J. J. Welder Sur., Coleman Fulton subd. T.D. 6,018 ft.; abd.

**Starr County**

Circle Oil Co. No. 1 Sabas Olivarez, C. C.S.D.&R.G.N.G. Sur. No. 241. Drlg. 1,820 ft.
Sun Oil Co. No. 1 A. Olivarez, C.C.S.D. &R.G.N.G. Sur. No. 239 (Sun field). Cg. sdy. sh. 5,069 ft.
Sun Oil Co. No. 1 Speer, Sec. 274 (1 mi. SW of discovery well. Cd. brkn. sd., oil odor 5,406-36 ft.; rmg. to make D.S.T.; T.D. 5,436 ft.

**Travis County**

W. P. and O. A. Wolter No. 2 Johnston, Jas. Burleson Sur. S.D. 300 ft.

**Webb County**

Wm. R. Spice No. 1 Garcia, Los Ojuelos gr. Cg. oil sd. 1,848 ft.

**Williamson County**

F. J. Anderson No. 1 Teichelman, Absalam Jett Sur. S.D. 2,999 ft.
Fritz Fuchs No. 1 Cain, T. J. Bird Sur. S.D. 50 ft.

**Wilson County**

Stapper Oil Co. No. 1 J. McDaniel, L. Manchoca Sur. S.D. 3,061 ft.

**Victoria County**

Wellington Oil Co. of Delaware No. 1 Boothe, Indianola R. R. Co. Sur. No. 10. Drlg. 1,726 ft.

**Zapata County**

Kirkwood and Morgan No. 1 Flores, G Flores Sur. 240. T.D. 1,803 ft.; abd.

## EAST TEXAS

*(Border Counties)*

**Cass County**

Harry Hanbury No. 1 Echols et al, SE cor. Echols tr., Wm. Mayes Sur. Tstd. S.W. and S.O. 5,987 ft.; P.B. 5,967 ft. and top Young sd. 5,998 ft.; set 58 ft. of 4½-in. csg. 5,998 ft.; T.D. 6,000 ft.; tstd. dry 6,000 ft.; perf. csg. 5,904-44 ft.; tstd. dry 5,944 ft.; ripped csg. 5,-

## LEGAL

Sale of oil and gas leases—Department of the Interior, General Land Office, Washington, D. C. Notice is given that the following described lands and deposits of oil and gas therein contained are offered to the qualified bidder of the highest bonus per acre for leasing pursuant to section 17 of the leasing act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate scale in the lease form shown in Circular 1386: Unit No. 1, the principal island, East Timbalier Island, known locally as Bird Island, located in fractional Secs. 34, 35, and 36, T. 23 S., R. 21 E., Secs. 2 and 3, T. 24 S., R. 21 E., and Sec. 31, T. 23 S., R. 22 E., Louisiana Meridian, situated on the Gulf Coast of La Fourche Parish, State of Louisiana, lying above the elevation of mean high tide, containing 295.77 acres, more or less. Unit No. 2, two islands, adjoining Unit No. 1 in a northeasterly direction between said principal island and Raccoon Pass, Island No. 1 located in fractional Sec. 31, and Island No. 2 located in fractional Sec. 32, both in T. 23 S., R. 22 E., Louisiana Meridian, situated on the Gulf Coast of La Fourche Parish, State of Louisiana, lying above the elevation of mean high tide, containing 11.69 and 69.29 acres, respectively, more or less. Sealed bids will be received in the office of the Secretary of the Interior up to 12:00 o'clock (noon), October 31, 1938. Bids must be submitted on each unit separately but both units, if awarded to the same bidder, may be included in a single lease. Each bidder must submit a certified or cashier's check or draft for 1/5 of the amount bid, payable to the order of the Secretary of the Interior, and furnish a showing of qualifications as required by section 7 of Circular 1386. The remaining 4/5, together with the annual rental at the rate of $1 per acre, must be paid by the successful bidder prior to the issuance of lease, and the deposits of other bidders will be returned. The envelopes should be marked plainly "Bid for Unit No. — (1 or 2), East Timbalier Area. Not to be opened before noon, October 31, 1938." The bidders are warned against violations of the provisions of Sec. 59 of the United States Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior. Protests by the State of Louisiana and others claiming under the State against the granting of Government leases for the group of islands on the ground that they are the property of the State were overruled by the Secretary of the Interior in a decision rendered July 29, 1938 (A. 21589), after an oral hearing at which the protestants were represented. The Secretary held that the United States has asserted ownership of and jurisdiction over East Timbalier Island for more than 100 years and that the group of islands are public lands of the United States. Commissioner, General Land Office.

968-73 ft.; swbg. S.W. and S.O.; O.T.D. 6,000 ft.

**Harrison County**

F. H. Barnwell No. 1, Luther Hope Sur. Drlg. 1,273 ft.

**Marion County—Rodessa**

Ark.-La. Gas Co. No. 1-B Braden Unit, Devalt Sur. Drlg. L.&sh. 3,889 ft.

Ark.-La. Gas Co. No. 1 Hussey, Chas. Lockhart Sur. Top anhy. 5,275 ft.; T. M.A. 5,540 ft.; D.S.T. 6,033-51 ft.; 60 ft. mud-cut oil and 20 ft. S.W. 25 min.; set 5½-in. csg. 6,045 ft.; perf. 5,902-37 ft.; tstd. 4,000,000 ft. gas; open flow; C.P. 1,500 lbs.; T.P. 1,300 lbs.; will acd.; T.D. 6,012 ft.; O.T.D. 6,051 ft.

Bender & Killingsworth No. 2 J.&N.W., Wm. Smith Sur. Drk.; (cor.).

Fohs Oil Co. No. 1 Davis, Wm. Smith Sur. Drlg. L. 3,920 ft.

Gulf Oil Corp. and Ohio Oil Co. No. 1 H. Davis, 30-ac. tr., Hanks Sur. Perf. 6,071-85 ft.; swbd. dry; arng. acd.; T. D. 6,101 ft.

Hollandsworth Drlg. Co. No. 2 Davis, Wm. Smith Sur. Drlg. anhy. 5,665 ft.

Illinois Oil Co. No. 2 Hale, John Hanks Sur. Drlg. sh.&L. 4,740 ft.

Shell Pet. Corp. No. 1 Fant, Coy Sur. Hd. por. 6,054-67 ft.; 5-in. csg. 6,066 ft.; T.D. 6,067 ft.

Texas Co. No. 1 Braden, J. M. Fitzgerald Sur. Set 7-in. csg. 5,974 ft.; tstg. 6,006 ft.

Texas Co. No. 2 Braden, Jos. M. Fitzgerald Sur. Drlg. sh.&L. 3,168 ft.

Wrather & Lapin No. 1 Davis, Wm. Smith Sur. Drlg. anhy. 5,381 ft.

**Marion County—Other**

Capps Bros. Lbr. Co. No. 2 Stiles, Wall Sur. T.D. 2,394 ft.; swbd. dry; shot with 2 qts. nitro at 2,334 ft.; tstd. dry; prep. shoot 2,263-2,334 ft.

Carroll & Tooke No. 2 Fitzgerald, N. Gumpton Sur. T.D. 1,022 ft.; tstg.

Geyer Oil Co. No. 6 Vincent, C. Davenport Sur. T.D. 2,408 ft.; tstd. csg. and S.D.

**Panola County**

Texas Co. No. 1 Claude Adams, T. Cox Sur. Top lower Marine 7,792 ft.; D.S. stk. 11,303 ft.; 6⅝-in. csg. 9,062 ft.; T.D. 11,303 ft.; perf. and tstd. S.W. in sds. from 8,930-7,150 ft.; sqzg. perf.; perf. Pettit sd. 5,724-40 ft. and 5,625-60 ft.; comp.; 3,000,000 ft. gas; R.P. 1,250 lbs.

**Sabine County**

Hugo Allen No. 1 Brooks, Isaac Low Sur. D.S. stk.; T.D. 5,644 ft.; set whp-stk. 4,710 ft.; prep. set 2nd whpstk. at 1,710 ft.

**Shelby County**

Redditt & Gray No. 1 Pickering Lbr. Co., Childers Sur. Set surf. csg.; S.D.

## WEST TEXAS WILDCATS

**Andrews County**

Fuhrman Pet. No. 1 G. O. Ashton, sec. 12, Blk. A-42, P.S.L. Sur. S.D.O. 4,492 ft.

Olson Drlg. Co. No. 1 Lockhart-Brown 5 mi. W of south end of Fuhrman pool. Tstg. 4,981 ft.

Texas Co. No. 1-H University, Sec. 4, Blk. 14, Univ. Sur. R.U.S.T. 4,150 ft.

J. W. Trippiehorn No. 1 M. A. Thornberry, Sec. 2, Blk. 42-A. Drlg. 4,214 ft.

L. H. Wentz No. 1-L W. F. Cowden, Sec. 3, Blk. 43, T.&P. Sur. Drlg. 3,700 ft.

H. C. Wheeler No. 1 White-Shelton Sec. 18, Blk. 36-A, P.S.L. Sur. Cmt. 7-in. 4,280 ft.

**Cochran County**

Magnolia Pet. Co. No. 1 Della Wright Lab. 7, Lge. 96, Mills Co. Sch. Ldr. Sur. Drlg. 5,045 ft.

**Coke County**

Barnett Pet. Co. No. 1 J. R. Mims, Sec. 39, Blk. W, T.&P. Sur. S.D. 1,861 ft.

**Culberson County**

Harry J. W. Niehaus No. 1 fee, Blk. 109, Sec. 13, P.S.L. Sur. 1,800-ft. test. S.D. 2,500 ft.

Quito Oil Co. No. 1 Cameron Lbr. Co., sec. 24, Blk. 81, P.S.L. Sur. S.D.R. 945 ft.

**Dickens County**

Bond D. Jones No. 1 Ford et al, I.&G.N. Sur. S.D.O. 2,770 ft.; prep. drill deeper.

**Ector County**

Fields et al No. 1 Owenwood, sec. 6, Blk. 44, T.&P. Sur. S.D.O. 4,435 ft.; S.O.&G.

**El Paso County**

Tri-State Oil Co. No. 1 Kinkel, S.D. 3,571 ft.

**Gaines County**

Atlantic Refg. Co. No. 1 A. J. & J. J. Parker Sec. 264, Blk. G. W.T.R.R. Sur. Tstg. 5290 ft.

H. J. Brown No. 1 A. L. Wasson, Sec. 51, Blk. AX, P.S.L. Sur. Drlg. 4,438 ft.

**Garza County**

Gulf Oil Corp. No. 1 Swanson, Sec. 25, Blk. 2, H.&G.N. Sur. Drlg. 8,020 ft.

**Hockley County**

Snowden & McSweeney No. 1 A. A. Slaughter, Zavalle C.S.L. Sur., Lge. 35, Lab. 74, Rng. tbg. to test 5,069 ft.

The Texas Co. No. 1-B Mallett Lands, Lab. 1, Lge. 52, Scurry C.S.L. Sur. R.U.S.T. 4,797 ft. (no report).

**Howard County**

Parten & Strickland No. 1 O'Daniel, Sec. 39, Blk. 30, T.&P. Sur. Drlg. 1,850 ft.

**Hudspeth County**

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ Sec. 34, Blk. 74, Twp. 6, C.O. 5,018 ft.; T.D. 5,133 ft.

Haymon Krupp No. 1 Briggs, sec. 24, Blk. 73, Twp. 7, T.&P. Sur. Drlg. 4,790 ft.

**Jeff Davis County**

Joiner Oil Corp. No. 1 Jones-Coffield, S.D. 3,742 ft.

**Lynn County**

John L. Baldridge No. 1 Alma Lbr. Co., Sec. 151, H.E.&W.T. Sur. W.O.C. 4,450 ft.

**Menard County**

C. D. Haggerty No. 1 Callon, sec. 36, Jim Franz Sur. Tools out; making 500,000 ft. gas 1,270 ft.; drlg. 1,015 ft.

**Pecos County**

E. B. Carruth Tr. No. 1 J. H. Tippett, Sec. 4, Blk. 194, G.C.&S.F. Sur. S.D. 30 ft.

Heimerich & Payne et al No. 1 Dow Puckett, Sec. 66, Blk. 3, T. & P. Sur.; 3,500-ft. test; prep. D.D. 2,915 ft.

Humble O. & R. Co., No. 1 A. H. Robertson, Sec. 27, Blk. OW, T.C.R.R. Sur.; 4,500-ft. test; drlg. 3,812 ft.

O. E. Schade No. 1 Neville, Sec. 72, Blk. 194, G.C.&S.C. Sur.; 2,500-ft. test. C.O. 786 ft.; H.F. sul. wtr.

S. Thompson No. 1 Elsinore Cattle Co., Sec. 54, Blk. D, G.C.&S.F. Sur. Fsg. 7,342 ft.

Thomason Prod. Co. No. 1 Notions, Sec. 1, Blk. 105, W. P. Howard Sur. Prep. D.D. 578 ft.

William No. 1 Maud S. Sanger, Sec. 10, Blk. 135, T.&St.L. Sur., 3,000-ft. test. Loc.

Union Oil & Mining Co. No. 1 First Natl. Bnk. of Ft. Stockton, Sec. 6, Blk. 9, H.&G.N. Sur. S.D. 1,760 ft.

**Reagan County**

John W. Emch No. 1 T.&P. Ld. Trust, Sec. 203, Blk. 1, T.&P. Sur. Drlg. 2,355 ft.

**Reeves County**

Frankley & Rice No. 1 W. A. Tunstill, Sec. 10, Blk. 56, T.&P. Sur. Tstg. 3,305 ft.; 6½ B.O. in 17 hrs.; 2,000,000 to 3,000,000 ft. gas per day; comp. 3,500,000 ft. gas per day.

Ohio Oil Co. No. 1 Papham, Sec. 18, Blk. 54, T.&P. Sur. Drlg. 4,780 ft.

**Runnels County**

Castor-Koerner & Goodrich No. 1 Beddo, Subdiv. 41, T. T. Williamson Sur. No. 15½. Drlg. 2,185 ft.

**Scurry County**

Coffield & Guthrie No. 1 E. E. Spears et al, Sec. 130, Blk. 97, H.&T.C. Sur. Drlg. by bit 2,300 ft.

**Sterling County**

J. W. Sward No. 1 Brennand, Sec. 107, Blk. 2, H.&T.C. Sur. S.D.O. 3,011 ft.

**Tom Green County**

Spinner No. 1 Reed, Mason Ferry Ranch Sur. Fsg. 5,118 ft.

J. B. Watson No. 1 Llano, C.S.L. Sur., Sec. 16, S.S.O. 665-66 ft.

**Upton County**

White & Wilson No. 1 Webb, Sec. 176, Blk. 1, C.C.S.D.&R.G.N.G. Sur. S.D.; csg. 150 ft.

**Val Verde County**

A. W. Little No. 1 R. W. Sellers, Sec. 34, H.&G.N.R.R. Sur. 1,500-ft. test. S.D.R. 344 ft.

**Ward County**

Herschel M. Jaffe No. 1 Viola Meyers, Sec. 17, Blk. 32, H.&T.C. Sur. S.D.R. 1,572 ft.

**Winkler County**

S. W. Richardson No. 1-A J. M. Broshara, Sec. 22, Blk. 77, P.S.L. Sur. Drlg. 3,425 ft.

J. R. Sharp No. 2 Sharp-Crume, Sec. 7, Blk. B-2, P.S.L. Sur. Loc.

**Yoakum County**

Honolulu Oil Co. No. 1 R. M. Kendrick, Sec. 825, Blk. D, J. H. Gibson Sur. Tstg. 4,983-5,058 ft.

J. E. Mabee No. 1 N. W. Willard, Sec. 741. Loc.

Shell Pet. Corp. No. 1 J. M. Rutts, Sec. 743, Drlg. 2,392 ft.

S. C. Yingling et al No. 1 Nettie Barrier, Sec. 6, Fsg. drill pipe 5,500 ft.

## TEXAS PANHANDLE

**Collingsworth County**

Tinsley, White & Knoll No. 1 Frank Knoll, Sec. 62, Blk. 16, H.&G.N. Sur. C.&P.

White No. 1 Wischamper, S.D. 2,263 ft. Johnson No. 1 Taylor, S.D. 5,650 ft.

**Deaf Smith County**

Uscan No. 1 Farwell, S.D. 5,650 ft.

**Donley County**

Robinson No. 1 Kuteman, Sec. 88, Blk. 20, H.&G.N. Sur. S.D. csg. 3,650 ft.

**Floyd County**

Mills, Bennett No. 1 Montgomery, F. J. Latham Sur., 6 mi. S of Floydada. S.D. 5,960 ft.

**Gray County**

English No. 1 Eudy, S.D. 3,977 ft.

**Kent County**

B. Dolman et al No. 1 C. V. O'Keefe, Sec. 50, Blk. 1, 15½-in. csg. set at 140 ft.; drlg. at 180 ft. last report.

**Lipscomb County**

M. C. Tieman No. 1 Spangle, Sec. 626, Blk. 43, H.&T.C. Sur. S.D. 50 ft.

**Potter County**

Sinclair Prairie Oil Co. No. 1 Bush, Sec. 23, Blk. 6, B.S.F. Sur., about 3 mi. N of Amarillo; 8,500 ft. test. Drlg. 3,660 ft.

**Roberts County**

Whitlock No. 1 Cunningham. Drlg. 2,817 ft.

## E. C. TEXAS WILDCATS

**Angelina County**

J. C. Bonham No. 7 Cameron Lbr. Co., E. Miller Sur., 7 mi. E of Zavalla. R.U.

Ginter Bros. No. 4 Cones Hrs., J. Morin Sur., 3 mi. E of Dibol. S.D. 2,214 ft.

**Cherokee County**

R. Bunn Drlg. Co. No. 1 Bolin, W. A. Walter Sur., 3 mi. SE of Lone Star; 3,000 ft. E of Bunn No. 2 Bounds. Cg. oil sd. 5,005-07 ft.; made 6,248,000 ft. gas in 1 hr.; est. 80,000,000 ft. gas on open flow; est. 1,500,000 ft. gas per day; T.D. 4,010 ft.

**Freestone County**

G. Shryock No. 1 M. S. Clark, M. D. Canton Sur., 8 mi. NW of Teague. D.&A. 4,155 ft.

**Grayson County**

Jim McMurrey No. 1 Dr. T. J. Long, J. Garland Sur., 2 mi. S of Collinsville; 4,000-ft. test. Drlg. 2,710 ft.

**Henderson County**

High Point Oil No. 1 W. A. Peavey, F. Brown Sur., 5 mi. E of Flag Lake field. D.&A. 3,425 ft.

Tide Water-Seaboard-Humble No. 1 Sadie Starr McGee, R. Acosta Sur., 3½ mi. NE of Murchinson. M.I.M.

**Houston County**

John G. Mayo No. 1 A. Warroch, J. Sheridan Sur., 1½ mi. E of Procella. D.&A. 5,890 ft.

**Kaufman County**

Sam Knoerr No. 1 J. B. Hunter, P. Walker Sur., 5 mi. S of Terrell. Drk.

W. S. McGee No. 1 Pritchett, J. Hendricks Sur., 7 mi. W of Mabank. S.D.; 3,104 ft.

J. F. McLaughlin No. 1 Wood-Nash, J. C. Cortez Sur., ¾ mi. SE of Scurry. Drk.

**Lamar County**

Dahl Bros. & Barr No. 2 McQuiston, R. Russell Sur., ½ mi. N of Paris. S.D. 30 ft.

**Leon County**

Lone Star Gasoline Co. No. 1 Steve Pate, D. J. Haskins Sur., 8 mi. SE of Buffalo gas area. Comp. 115,000,000 ft. gas per day; T.D. 5,782 ft.

T. J. Tucker No. 1 Same Vane, James Webb Sur., 4½ mi. SE of Keechi. P.B. 5,505 ft.; W.O.C.

**McLennan County**

J. C. Kilgore No. 1 Tom Motis, R. D. Price Sur., 4 mi. E of town of West; shallow test. Abd. loc.

Lisle Steele No. 1 C. H. Cherry, M. Martinez Sur., 4½ mi. SE of Waco. S.D. 1,300 ft.

**Madison County**

W. C. Holleman No. 1 D. C. Cannon, J. P. Phillips Sur., 7 mi. NW of Madisonville. Flowing wtr. 1,740 ft.

**Rains County**

McKinley & Hastings No. 1 McTaggert, B. Milder Sur., 1 mi. W of Emory. Loc.

**Red River County**

Bentley-Sheppard & Stevens No. 1 So. Pine Lbr. Co.; G. S. Parks sur.; 17 mi. N of Clarksville. S.D. 71 ft.

Daniels et al No. 1 J. J. Gaston, J. Guest Sur., 2 mi. S of Detroit. S.D. 1,109 ft.

Texas Trading Co. No. 2 Southern Pine Lbr. Co., D. D. Briton Sur., 12 mi. N Clarksville. Perp. swab after acid 2,155 ft.

**Rusk County**

Drake Drlg. Co. No. 1 R. L. Needham, J. H. Chambers Sur., 3 mi. S of Laneville. M.I.M.

**Smith County**

J. H. Thomason No. 1 J. W. Bartlett, R. H. Stewart Sur., ½ mi. SE of Jamestown. Drlg. 1,140 ft.

**Trinity County**

C. D. Davis No. 1 J. D. Gibson, A. Donavan Sur., 4 mi. NE of Trinity. R.U. and S.D.

Leon Gay No. 1 J. B. Gibson, W. M. Beardsly Sur., 1 mi. S of Trinity. Drlg. 2,114 ft.

**Van Zandt County**

W. S. King No. 1 Edna W. Watson, M. G. Whitaker Sur., 5 mi. S of Grand Saline. S.D. 2,600 ft.

## NORTH TEXAS WILDCATS

**Archer County**

Heimerich & Payne et al No. 2 L. F. Wilson, Blk. 25, A.T.N.C.L. Sur. 100-qt. shot 4,352-70 ft.; flowing 25 bbls. per hr.

Panhandle Rfg. Co. No. 2-A H. O. Prideaux, A. Rohus Sur. A-1126. S.S.O. 3,258-66 ft.; tstg.

Sinclair Prairie No. 1 J. A. Hood, Blk. 18, A.T.N.C.L. Sur. 6¾-in. cmtd. 4,954 ft.; drlg. plug.; sd. 4,960-75 ft.; test. S.W.; S.D.O.

**Baylor County**

H. F. Wilcox No. 1 J. E. Fritz, D. Barlow Sur. A-10. Drlg. 3,310 ft.

**Clay County**

Walter Gant No. 1 Bryant Edwards, S. C. Beldon Sur. A-12; 6,000-ft. test. 6⅝-in. 5,990 ft.; S.L. 5,994-6,016 ft.; T.D. 6,354 ft.; P.B. 6,069 ft. and shot csg.; treating; acd. 5,794-5,839 ft. through perfs.

**Cooke County**

Bin Indian Oil Co. No. 1 Alexander, T. Clevenger Sur., Abst. 1138. Drlg. 2,195 ft.

Denver P. & R. Co. No. 1 D. B. Allred, De Los Santos Sur. A-894. Loc.

L. C. Heydrick No. 1 F. J. Franklin et al, L. Raney Sur. A-878. Loc.

Seitz et al No. 1 C. A. Willis, L. Finley Sur. A-378. Drlg. 2,015 ft.

**Grayson County**

O. L. McDougal No. 1 Jackson, H. Coffee Sur., Abst. 204; 4,000-ft. test. Drlg. 610 ft.

**Jack County**

Noah Daves No. 1 K. D. Baker, Sec. 2709, T.E.&L. Sur. 4,000-ft. test; S.D.O. 2,230 ft.

Southern O. & G. Co. No. 1 A. Eason, A. D. Kennard Sur. A-328. Spud. and S.D.

**Knox County**

Roeser Pendleton and I.T.I.O. No. 1 G. H. Beavers, Sec. 151, H.&T.C. Sur. S.D. 3,833 ft.

**Montague County**

H. H. Powell No. 1 Arch Durham, W. J. Wagoner Sur. A-936. S.D.O. 1,800 ft.

Sinclair Prairie No. 1 Hill, Blk. 71, L. C.S.L. Sur. T.D. 1,558 ft.; C.O.

Youngblood & Foree No. 1 J. A. Burnett, J. Lenow Sur. A-433. Drlg. 2,880 ft.

**Wichita County**

F. S. Freeland No. 1 J. D. Cooper, H. Hastle A-92; 4,000-ft. test. Loc.

**Wise County**

H. M. Muse No. 1 F. F. Kaker, Blk. 16, Matagorda Co. Sch. Lds. Pits.

**Young County**

Dean et al No. 1 P. N. King, C. H. Russell Sur. A-1889. Drlg. 2,780 ft.

Horwitz & Oldom No. 1 C. J. Taach B, Sec. 248, T.E.&L. Sur. 6⅝-in. 4,113 ft.; drlg. 4,810 ft.

R. V. Tidewell No. 1 J. N. Ivey, F. L. Green Sur., Abst. 105. Drlg. 3,530 ft.

## WEST CENTRAL TEXAS DISTRICT

**Brown County**

H. P. Evans No. 1 C. M. Kilgore, Robt. Mitchell Sur. No. 141. Drlg. 700 ft.

**McGREGOR**

**85,000 Working Barrels in Use**

OUR working barrels have been continually improved for 30 years. We have worked with producers in developing many special features for pumping.

*We will be glad to try to help you out of your difficulties.*

**McGREGOR WORKING BARREL COMPANY**

Bradford, Pa., U.S.A.

Evans No. 1 J. F. Davis, S. Tull Sur. No. 894. Sp. and S.D.

**Callahan County**

Dobbs Oil Co. No. 1 Finley, sec. 75, Bayland Orphans Home Ld. Fsg. 1,785 ft.

**Coleman County**

Arcadia Ref. Co. No. 1 W. R. Roberts, D. J. Holt Sur. Fsg. 2,685 ft.
Hoffman & Page No. 1 T. A. Drake, J. H. Woods Sur. No. 46. Drlg. 2,985 ft.
Lynn & Jordan No. 1 Eades, J. West Sur., 7 mi. SW of Santa Anna. Tstg. 2,865 ft.
Bob Murray No. 1 Dibrell, H. Kigan Sur. near Camp Colorado. Acd. 2,360-65 ft.: no results.
Simpson & White No. 1 Baker, M. A. Fisk Sur. No. 630, Abst. 195. W.O.C. 2,257 ft.

**Comanche County**

Comanche O. & G. Co. No. 1 J. E. McGuire, C. Rockefeller Sur. No. 3. S.D.O. 1,520 ft.
E. T. DeArman No. 1 Underwood, Sec. 37, D.&D.A. Sur., Abst. 624. T.D. 2,764 ft.; P.B. 2,662 ft.; tstg.; est. 20 B.O.P.D.
Loraine No. 1 Carlisle, Sec. 9, Blk. 2, H.&T.C. Sur. M.I.M.
Loraine No. 1 Haile, Sec. 9, Blk. 3, H &T.C. Sur. C.O. 2,781 ft.; sat. 2,698-2,740 ft.

**Eastland County**

J. F. Baker No. 3 N. T. Mulloy, Wm. Ahrenbeck Sur., Abst. 700. Drlg. 2,782 ft.
Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test. S.D. 1,738 ft.
Hickok P. & D. Co. No. 1 Penn, Sec. 468, S.P. Sur. Drlg. 950 ft.

**Erath County**

Wayne Chandler No. 1 Chandler, J. W. Moore Sur., Abst. 571. Fsg. 2,826 ft.
Collard No. 1 W. L. Payton, H. Pierson Sur. No. 1, Abst. 1105. S.D. 185 ft.

**Hamilton County**

Wallace & Vickers No. 1 C. C. Lund, J. P. Bailey Sur. 51. Drlg. 925 ft.

**Haskell County**

Roeser & Pendleton & I.T.I.O. No. 1 M.O. Daugherty, Sec. 19, Wise C.S.L. Sur. Drlg. 1,455 ft.
Sawyer Drlg. Co. No. 1 A. J. Rowland Est., Sec. 5, Blk. 3, H.&T.C. Sur., 15 mi. E of Stamford. S.D.O. 3,239 ft.

**Jones County**

Brown Eagle Oil Co. No. 1 Haynes, Sec. 191, Lemuel Andrews Sur. S.D.O. in sd. 2,283 ft.
Brown Eagle No. 1 Waterson, Andrews Sur. No. 191. T.D. 2,283 ft.; S.D.
R. B. Farris No. 1 Chas. Donohoo, 220 ft. from S and E lines, N½ Sec. 5, B.B.B. &C. Sur. S.D. 2,090 ft.
S. C. Herring No. 1 B. L. Ellis, 330 ft. fr. N and E lines, SE¼ Sec. 8-15, T.&P. Sur. Loc.
Humble O. & R. Co. No. 1 Sam Lewis, 1 mi. S of Hawley pool, C. E. Dewitt Sur. No. 254. Drlg. 575 ft.
Providence Royalty Co. No. 1 Phillips Est., Subd. 43, Lge. 334, Harrison C S.L. Sur. Loc.
S. B. Roberts Co. No. 1 Roy E. Prichard, 205 ft. fr. S L, 2,428 fr. E L, J. E. Cockrell subd. 2, G. Martinez Sur. 195. Loc.
Sinclair Prairie No. 1 Williams, Sec. 40, Blk. 18, T.&P. Sur. C.O. 2,960 ft.
Stiles et al No. 1 Cook, Sec. 89, B.B.B. &C. Sur., western part of county. Drlg. 2,935 ft.
Ungreen & Frazier No. 1 Griffin, Sec. 188, B.B.B.&C. Sur. Drlg. 2,030 ft.

**Nolan County**

Oyster, Harkrider et al No. 1 J. H. Withers, C SW¼ Sec. 65-21, T.&P. Sur. Wildcat to drill 4,000 ft. S.D. 4,505 ft.
Chas. E. Peddicord No. 1 Tipton, Sec 43, Blk. 19, T.&P. Sur. Rng. csg. 2,-260 ft.
Union Oil Co. No. 1 J. D. Pepper, Sec 51, Blk. 21, T.&P. Sur.; 5,000-ft. test 6 mi. SW of Sweetwater. Drlg. 1,565 ft.

**Palo Pinto County**

Engreen No. 1 Ola Carter, Blk. 10, McKinney & Williams Sur. Tstg. 1,753 ft.
Goble-More Drlg. Co. No. 1 M. B. Costello, R. R. Williams Sur., Abst. 896 Drlg. 2,075 ft.

**Parker County**

Bartrug & Burns No. 1 Lankin, Sec. 346. T.&P. Sur. S.D. 358 ft.
Brown-Gardner Bros. No. 1 Gilbert, T &P. Sur., Abst 1958. S.D. 2,175 ft.
Glen Rose No. 1 H. D. Groves, SW¼ Sec. 350, T.&P. Sur. S.D. 605 ft.

**Runnels County**

Castor No. 1 Beddo, T. T. Williamson Sur. No. 15½. Drlg. 1,860 ft.

**Shackelford County**

J. E. Carson No. 1 Davis, Sec. 14, Blk. 12, T.&P. Sur. D.&A. 1,670 ft.
Joe DeGrazier No. 1 Harbough, E cen. part of county, Sec. 1563, T.E.&L. Sur. 4,500-ft. test. Drlg. 3,845 ft.
Fox & Rudd No. 1 Shotwell, Sec. 59, B A.L. Sur. S.D. 1,600 ft.
R. H. Gordon & Frank Pethybridge No. 1 C. B. Snyder, 330 ft. fr. N and E lines, Sec. 38, L.A.L. Sur.; 4,500-ft. test Est. 20 to 50 B.O.P.D.; T.D. 3,660 ft.; drlg. 3,845 ft.
J. G. Hammond No. 1 Coker, 1,620 ft. fr. S line and 1,020 ft. fr. W lines, Sec. 159, B.B.B.&C. Sur. Drlg. 5,095 ft.

**Stephens County**

Lone Star No. 1 J. S. McKee, 660 ft. fr. N line, 660 ft. fr. W line, Sec. 41-7 T.&P. Sur. T.D. 4,061 ft.; comp. 408,000,-000 ft. gas per day.

**Taylor County**

Charter O. & G. Co. and A. R. Forester No. 2 Frederickson, Guadalupe C.S.L. Sur., Sec. 120, 3 mi. N of View. Swbg. 70 B.O.P.D.; 2,332-80 ft.
T. M. Knoles No. 1 Bowles, Sec. 21, B A.L. Sur. P.B. 1,910 ft.; est. 7 B.O.P.D.

**Throckmorton County**

Beacon O. & R. Co. No. 1 Hawes Est. Sec. 979, T.E.&L. Sur. Tstg. 4,085 ft.
Jones & Stasney No. 1 C. T. Brockman, 330 ft. S line, 330 ft. E line, Sec. 95, Comanche Indian Sur. T.D. 4,706½ ft. est. 1,000 to 1,500 B.O.P.D.; acd. 4,-711 ft.; ga. 145 B.O. 2 hrs.; trying to S.O. wtr.; S.D.; no test; T.D. 4,716 ft.; P.B. 4,710 ft.; tstd.; no results; S.D. 4,715 ft.
Marland-Drake No. 1 Dickie Bros., center T.E.&L. Sur. 2226. S.D.O. 4,590 ft.

## Canadian Fields

*(Continued from Page 218)*

George S. Levis; secretary, D. Austin Lane.

### Border Fields

On the Bridge dome structure, east of Coutts, Anglo-Canadian Oil Co. No. 1 Milk River, LSD 10, Section 4-2-13w4, is below 1,945 feet.

Keho Dome Oils, Ltd., is arranging for a test in the Keho Lake area. A previous test by Hudson Bay Oil & Gas Co. in LSD 2, Section 17-11-22w4, was carried to 4,920 feet, getting two good shows of oil and for a time a small production was taken from a stray sand in the Benton shales. There is a quite extensive structure which has not been fully tested.

### Ontario Drilling

In the Petrolia field, Lambton County, Ontario, William J. Hussey No. 1, Peninsular Sugar Co. property, Blind Line, is finishing in the shallow oil horizon around 500 feet, and will be shot. A good pumper is expected. This is the first of a series of tests to be drilled by Mr. Hussey on property leased from the town of Petrolia.

In Warwick Township, Andrew Heal and Sam Birchall, drilling on the Sam Birchall farm, got a heavy show of crude in the upper lime at 380 feet. Drilling was discontinued and pumping test will be made before deepening to the lower lime around 480 to 490 feet. Heal-Birchall No. 1 is about 1½ miles east of the two previous producers drilled by Leo Wilson of Sarnia and Albert Gibson of Petrolia, which got flush production between 30 and 50 bbls. a day from the lower lime at 490 feet. Considerable leasing has been done in the Warwick area and several new drilling rigs are being moved in. F. W. Yerkes and the McIntosh Oil & Gas Co., both of Petrolia, are starting tests.

In the Bothwell pool, Zone Township, Kent County, a test by the Holmes-Miller-McGill Syndicate on the Thomas McRoberts farm got a strong flow of crude, flushing 8 feet from the well head, with considerable gas. Production test is being made.

In Chatham Township near Dresden a well on the Marshall McFadden farm is pumping 8 to 10 bbls. a day from the shallow horizon at 405 feet.

### Turner Valley Conservation

A court action by Mercury Oils, Ltd., and associate interests to have the conservation orders of the Petroleum and Natural Gas Conservation Board declared null and void was dismissed by Justice W. C. Ives. The judgment will be appealed to a higher court. In the meantime, the conservation orders became effective at 8 a.m. on October 15, enforcement having previously been deferred from September 14 to permit naphtha operators to study a possible repressuring project. Under these orders, the aggregate daily production of some 96 gas-naphtha wells in Turner Valley is restricted to approximately 40,000,000 feet a day. The potential flow of these wells is estimated at 300,000,000 feet a day, but some have been closed down and others operating on a restricted schedule, making the actual daily flow approximately 114,000,000 feet. Penalties for noncompliance with the board's orders are an initial fine of $2,000 plus $500 a day for each day the order is not complied with.

It is understood that gasoline absorption plants are planning to operate largely on gas from crude wells, which are not affected by the restriction.

### Turner Valley Allowables

Reduction in the present allowable of 22,000 bbls. for Turner Valley crude wells will take place in a few days. With a lessened market following the heavy demand for the harvest season, the new quota for the field will be set at about 14,000 bbls. daily.

## Rocky Mountain Runs

Production estimates for week ended October 22:

**WYOMING**

| | Bbls. |
|---|---|
| Salt Creek | 15,120 |
| Big Muddy | 1,190 |
| Badger Basin | 100 |
| Black Mountain | 140 |
| Cole Creek | 70 |
| Dallas Derby | 350 |
| Dewey | 130 |
| Dutton Creek | 50 |
| Elk Basin | 680 |
| Frannie | 880 |
| Garland | 2,470 |
| Grass Creek | 2,060 |
| Hidden dome | 110 |
| Hudson | 230 |
| LaBarge | 890 |
| Lance Creek | 13,620 |
| Lost Soldier | 1,740 |
| Mahoney | 160 |
| Medicine Bow | 2,970 |
| Mule Creek | 80 |
| Midway | 30 |
| Oregon Basin | 4,740 |
| Osage | 780 |
| Pilot Butte | 10 |
| Quealy dome | 770 |
| Rock River | 1,350 |
| Spindletop | 20 |
| Poison Spider | 350 |
| Teapot | 20 |
| Warm Springs | 140 |
| Wertz | 990 |
| Total Wyoming | 52,240 |

**MONTANA**

| | |
|---|---|
| Border | 70 |
| Cat Creek | 550 |
| Cut Bank | 8,160 |
| Dry Creek | 1,110 |
| Kevin-Sunburst | 3,390 |
| Pondera | 880 |
| Total Montana | 14,160 |

**COLORADO**

| | |
|---|---|
| Wilson Creek | 350 |
| Florence | 100 |
| Fort Collins and Wellington | 340 |
| Iles dome | 1,820 |
| Moffat | 330 |
| Orchard | 30 |
| Rangely | 80 |
| Tow Creek | 140 |
| Price | 530 |
| Total Colorado | 3,720 |

**NEW MEXICO**

| | |
|---|---|
| Cooper | 4,820 |
| Eaves | 850 |
| Eunice | 24,720 |
| Hardy | 2,770 |
| Hobbs | 12,900 |
| Jal | 1,010 |
| Langlie | 4,510 |
| Lynch | 560 |
| Lynn | 900 |
| Mattix | 3,320 |
| Monument | 25,470 |
| North Lynch | 40 |
| Penrose | 5,780 |
| Rhoades | 150 |
| Skelly | 1,940 |
| South Eunice | 3,120 |
| Vacuum | 4,590 |
| Empire State | 60 |
| Artesia-Maljamar | 7,970 |
| Getty | 300 |
| Hogback | 200 |
| Rattlesnake | 630 |
| Table Mesa | 90 |
| Total New Mexico | 106,700 |
| Total Rocky Mountain region | 176,820 |

## WEST TEXAS COMPLETIONS

(24-hour tests)

### Crane County

Texas Co. No. 3-D University, 3,540-55 feet, 5,157 bbls. Sindorf & Stone No. 1 King, 2,035-2,136 feet, 519 bbls.

### Dickens County

J. F. Morrissey No. 1 C. D. Bird, dry and abandoned at 2,550 feet.

### Ector County

Shell Petroleum Corp. No. 3-D University, 3,340-3,638 feet, 1,653 bbls. Humble Oil & Refining Co. No. 1 F. A. Henderson, 4,189-4,328 feet, 183 bbls. Continental Oil Co. No. 4 J. L. Johnson, 4,140-4,268 feet, 719 bbls. Broderick & Calvert No. 5 J. E. Witcher, 4,085-4,220 feet, 1,745 bbls. Phillips-Pure No. 42 Clyde Cowden, 4,035-4,183 feet, 1,033 bbls. Atlantic Refining Co. No. 7-C Rumsey, 4,210-40 feet, 249 bbls. Carter & Naylor No. 7 J. E. Parker, 4,090-4,271 feet, 819 bbls. Shell Petroleum Corp. No. 16 E. F. Cowden, 4,058-4,280 feet, 843 bbls. Texas Co. No. 7-B J. E. Parker, 4,058-4,200 feet, 1,023 bbls. L. H. Wentz No. 3-B TXL, 4,054-4,183 feet, 2,469 bbls.

### Hockley County

Gulf Oil Corp. No. 2 Mallett, 4,975-5,090 feet, 200 bbls.

### Pecos County

W. H. Street No. 3 E. Fromme, 1,415-55 feet, 336 bbls. Peerless Oil & Gas No. 2 Pecos Valley, 1,651-1,708 feet, 2½ bbls. Standard Oil of Texas No. 9 M. A. Smith, 1,485-95 feet, 360 bbls.

### Reeves County

Frankley & Rice No. 1 W. A. Tunstill, 3,290-3,305 feet, 3,770,000 feet of gas.

### Winkler County

Texon No. 2 E. W. Cowden, 2,880-2,985 feet, 517 bbls. Phillips Petroleum Co. No. 6 E. P. McCabe, 2,736-2,937 feet, 1,425 bbls. Magnolia Petroleum Co. No. 186 Walton, 2,850-2,910 feet, 1,850 bbls.; No. 187 Walton, 2,830-2,915 feet, 1,833 bbls. J. R. Sharp No. 1 Sharp-Crum, 3,293-3,375 feet, 65 bbls.

### Upton County

Cordova Union No. 10-A fee, 2,024-74 feet, 241 bbls. W. H. Burleson No. 1 R. E. Long, dry and abandoned at 2,130 feet.

### Ward County

Gulf Oil Corp. No. 106 Estes, 2,460-2,655 feet, 912 bbls.; No. 107 Hutchins, 2,616-3,080 feet, 221 bbls. Falls Oil Co. No. 2 Johnson, 1,950-2,015 feet, 363 bbls.

### Yoakum County

Texas Pacific Coal & Oil Co. No. 11 Bennett, 5,075-5,250 feet, 1,892 bbls. Humble Oil & Refining Co. No. 1 Randall, 5,128-60 feet, 404 bbls. Shell Petroleum Corp. No. 5 Lowe, 4,855-5,055 feet, 902 bbls. Texas Co. No. 4 N. W. Willard, 4,915-5,100 feet, 297 bbls.; No. 1 Wooten, 4,885-5,050 feet, 371 bbls.

# Pacific Coast A.I.M.E.

*(Continued from Page 46)*

vent action of oil on gas or free gas on oil. A measure of this action is attempted by determining the changes in the volume of free gas recovered per unit of space as relative oil and gas concentrations change under isobaric conditions. Tables are presented indicating these changes and are shown graphically by charts. Attention is called to the similarity between these variations and the variations in the values of equilibrium constants. Retrograde vaporization is concluded to be a comprehensive factor in deep seated reservoirs and may result in large quantities of oil existing in the vapor phase. Upon the reduction of pressure this oil is condensed either in the reservoir, in the well or in the gas separators and becomes a part of the oil upon which gas oil ratio values are based. Reversing the process and by analyzing gas oil ratios into their component parts, namely the bubble point volume, the formation volume, the free gas, the free gas volume and noting changes in the latter per unit of space the extent of retrograde vaporization in a reservoir can be prophesied.

## REFLECTION PROSPECTING SEISMOGRAPH INSTRUMENTS

*By Arthur Nomann*

During the decade during which reflection seismographs have been in commercial use, their design has been guarded as a trade secret. At the present time the general principles of construction are quite widely known, but designers are continually changing and each company has improvements which it keeps secret, and interchange of information is the exception rather than the rule. Field men are instructed not to discuss their instruments outside the company, and some companies seal up the various units in such a way that they cannot be inspected by their own men who are instructed to return the instruments to the laboratory when they fail to function and not attempt to fix them themselves. The technical literature on seismograph prospecting is of no value whatever to anyone wishing to construct a set of instruments, and he must rely on information collected through personal contacts for data on what rival organizations are doing. This situation has undoubtedly retarded the development of instruments but as far as we are aware has not resulted in any one organization being able to develop and keep secret any construction or methods which place it greatly in advance of the remainder of its competitors. The most commonly used methods of transducing the differential movement between geophone parts into electrical impulses are (1) By means of a moving coil of insulated conductor wire in a magnetic field. As the coil is moved relative to the field, the number of magnetic linkages with the coil varies and a voltage is generated in the coil. The magnitude of the generated voltage will be proportional to the rate of change of linkages, so that the voltage will tend to be proportional to the velocity of differential movement between the standing and moving parts of the geophone. (2) A coil or coils linked with a magnetic field which comprises variable air gaps in the magnetic circuit, the air gaps changing with movement of the steady mass. Changes in the size of the air gaps change the reluctance of the magnetic circuit, and with a constant or nearly constant magnetomotive force, there will be a change in the number of linkages with the coil. The voltage will vary with the velocity of differential movement between the standing and moving parts of the geophone. Less frequently used transducing methods are (3) Piezo electric crystal methods. Certain crystals of which quartz is often used have the property of generating a voltage on their surfaces when they are distorted, the generated voltage being proportional to the amount of compression to which the crystal is subject. (4) Condenser type. The standing and moving parts of the geophone support closely spaced plates which act as a condenser. As the space between the plates varies their capacity as a condenser changes. If a fixed voltage difference is maintained between the plates, there will be a current flow to or from the condenser as its capacity changes, and this current flow can be used to produce a signal for amplification and recording. Recent innovations in amplifier design include the provision of several alternative filtering circuits so that the observer may in his judgment fit the filtering to the particular requirements of the area being explored. Much of the excellence of the various secret seismograph designs is said to lie in the character of the filter circuit, and extravagant claims are made for the almost human intelligence displayed by such filters in passing the wanted reflections for recording and excluding the undesirable vibrations. While it is possible to design a very bad filter circuit it would seem that there are simple principles of design which if followed should lead to filters as good as can be made for the particular character of and amount of filtering produced. The most difficult question is to determine exactly what type and amount of filtering.

## THEORY OF SEISMIC REFLECTION PROSPECTING

*By Willard H. Tracy*

The method of seismic reflection prospecting has many times been compared to sound ranging, a process which became familiar to many during the World War. According to this very simple theory, the dynamite goes off and sends out a compression wave which meets a reflecting horizon, and returns to the surface where it is recorded, and the elapsed time of its travel in the earth accurately determined. Computations are then made on the general theory that the longer the elapsed time, the greater the depth of the reflecting bed. While this serves to give an idea of the fundamental basis of the process it suggests a simplicity which does not exist in the life history of the various waves set up by a dynamite explosion in the earth. To begin with, a seismic wave in the earth does not obey the same simple laws of propagation which apply to a sound wave in the air. The property of strength in shear possessed by solids introduces a factor which sets such waves apart from the ordinary air waves. Also the transmission characteristics of the earth vary widely from place to place, and a fairly accurate knowledge of the space relationships of these variations must be had if the final results are to be understood. Besides the waves recorded and used in the reflection computations there are many other, unwanted waves resulting from explosion, and we must know something of these in order not to confuse them with the wanted reflections. The term elastic wave is one of several terms which are applied to the vibrations which may be transmitted by the earth. Other terms are seismic wave, longitudinal wave, compression wave, rarefaction wave, sound wave, transverse wave. Of these, seismic waves, and elastic waves may be both of the longitudinal or transverse type, compression, rarefaction, and sound wave being restricted terms for particular longitudinal waves. In books on earthquake seismology one finds the term Principal wave applied to the longitudinal wave and Secondary wave applied to the transverse wave, and these terms are often contracted to P and S waves. One also finds Rayleigh wave and Love wave used as names for particular types of transverse waves which follow the surface of the ground. The Rayleigh wave is of the same type as the Ground Roll of the prospecting seismologist. The longitudinal wave is one in which the actual motion of the particles of the earth move back and forth in the plane which lies at right angles to the direction of the progress of the wave. The most important class of transverse waves is that in which the wave is strongest along the interface between two media, as between earth and air, and the amplitude of the motion decreases with distance from the interface. In the Rayleigh wave the motion is at right angles to the interface (up and down on the surface of the earth), and with Love waves the motion is parallel to the interface. Actually the motion includes some longitudinal motion, being of the nature of movement in an ellipse of which the transverse direction is the major axis. Each type of wave trains may be recognized by various criteria, but due to the instrumental characteristics of the receiving and recording apparatus their true character is not accurately recorded. A study of these waves with a high fidelity recording apparatus would be desirable, but we have not the result of any such study available to us, nor have any such results been published. The first arrival or shortest time path wave is the wave used on the old refraction shooting and is the wave train which arrives first at the recording apparatus when the latter is at a sufficient distance from the source for this wave to outdistance the direct path wave. A sudden increase in velocity characteristics downward in the earth is necessary for the development of this wave. In reflection shooting this is the interface between weathered zone and the underlying unweathered zone. Direct path compression wave: This should arrive shortly after the fastest wave, and should have the maximum energy of all of the arriving waves. Actually the shortest time path wave merges into a series of waves of increasing amplitude for several cycles, sometimes with a phase break which may indicate the first arrival of the direct wave, but in other cases this phase break cannot be discerned. Where the initial phase of the direct wave can be discerned it ushers in a wave train of several cycles with gradual build-up to a maximum and gradual decay in amplitude. Reflections are the waves of principal interest inasmuch as they are the ones which are used to calculate the subsurface structure. In some cases a reflection may have a characteristic appearance dependent on the stratigraphic succession at the reflecting zone. Thus in Oklahoma a characteristic iola reflection may be recognized. In some cases there is a sudden onset with phase interruption from the preceding energy arrival, and short duration with high damping. Such a reflection is most easily recognized, and will have its best appearance on records taken with instruments of minimum amount of filtering. High speed ground roll is the name applied to waves which seem to arrive at successive geophones at times indicating a horizontal component of travel of around 2,000 to 2,500 feet per second. It is possibly a transverse wave along the interface between the weathered and unweathered zones, which sends off secondary compression waves to reach the surface. Diffraction waves: Mr. Rieber has called attention to the possible importance of diffraction waves in faulted structures and has illustrated their formation with model experiments. While such waves may be hard to recognize due to attenuation of their energy content due to their mode of origin, they should prove of value wherever their character can be determined and their place of origin computed. As previously stated the fastest wave path involves a diffraction of the wave.

## MODERN TREND IN DRILLING EQUIPMENT

*By A. H. Bell*

The trend toward unitization and portability will continue with the result that greater standardization and simplicity of arrangement will be accomplished but that the trend toward larger sizes and pressures will be arrested and supplemented with machinery that will develop horsepower through higher speeds and smaller unit loads than used at present. The chief incentive to such a change will be lower purchase and installation costs together with the fact that such a rig would be good for either shallow or deep wells while the present heavy rigs would be prohibitive for shallow work. Considering the rotary drilling rig as a whole it may be said that the present trend is toward greater size and weight in all equipment to handle the greater loads and speed requirements and toward unitization of the various groups of equipment, piping or machinery that perform the different functions of drilling operations. At great depth it becomes increasingly important to utilize every equipment advantage which will increase the ever-diminishing percentage of productive time actually spend on bottom. Among recent innovations is a 122-foot derrick with an extended window reaching nearly to the run-around. Desirability of this feature in facilitating the handling of longer drill pipe, drill collar, and casing sections is, as yet, a matter of opinion. Another new development in derrick equipment is the use of steel racks and walks. These are designed so as to be connected up in units for portability and offer advantages over the wooden racks where level ground and short hauls are the rule. Considering the present trend it is probable that in the future all structures in connection with the derrick will be unitized portable steel assemblies and that the only wood work will be in the floors. The design of boiler plant arrangement has been undergoing a great change in the past year or two. For deep drilling below 10,000 feet the trend has recently been toward higher pressures, with 350 pounds steam pressure the present maximum. One company is reported to have ordered 500-pound boilers for a deep drilling job, and though this may be extremely high pressure for drilling boilers which do not have the careful supervision of a central plant, their performance will undoubtedly have great influence on future trends in steam pressures. The trend in boiler design is toward larger fire boxes with shorter and larger diameter barrels which gives higher stack temperatures and lower fuel efficiency but greater mean temperature differences and consequently greater steaming capacity per square foot of surface. The trend in drawworks, engine and rotary table design has been toward a pronounced departure from former practice. Drawworks are now all fully unitized and enclosed and it is becoming universal practice to install the drawworks and engine on a steel skid with the concrete foundation flush with the ground. Much greater stability of supports and elimination of vibration has resulted from this improvement, and longer life for the equipment should result. As an added advantage the equipment may be easily moved in and out with a minimum of expense lost in foundations.

# PERSONAL

B. B. Brown, of Vivian, La., was elected president of the Rigbuilders International Council, a subsidiary of the International Oil Workers Union, in Fort Worth, Tex., last week. He is supported by CLYDE JONES, of Longview, Tex., vice president, and C. P. HAMBURG, of Houston, Tex., secretary and treasurer.

L. H. THAWLEY, Wichita, Kans., assistant manager in Kansas for the Phillips Petroleum Company, was named chairman of the Wichita chapter of the American Petroleum Institute at its final organization meeting last week. The new chapter is the third to be organized in Kansas. W. R. REARDON, Wichita, Shell Petroleum Corporation, was elected first vice chairman and DAVE A. BASH, Eldorado, with the Cities Service Oil Company, was named second vice chairman.

CRAIG F. CULLINAN, president of the American Republics Corporation in Houston, Tex., is spending several days in White Sulphur Springs, W. Va., accompanied by Mrs. Cullinan.

JAMES ANDERSON, vice president of the Humble Oil & Refining Company, and Mrs. Anderson have returned to Houston, Tex., after visiting in New York and Toronto, Canada.

L. M. CROW, part owner of the Crow Drilling Company of Shreveport, La., has moved from Waldo, Ark., to Shreveport, where he will be in more direct contact with operations of his company.

LEVERETT T. LEONARD, inspired by oil activity, took an option on a plot of land in McAllen, Tex., planning to build a hotel on it. But oil got too close to the lot, so he has let his option expire and has gone into the grapefruit business.

CHARLES W. FLAGLER, on the Mene Grande Oil Company's geological staff in Venezuela, has been appointed London resident geologist for the Gulf Exploration Company (Great Britain) to succeed PARKER A. ROBERTSON. Mr. Flagler left last week to assume his new duties in England.

ROBERT M. BENARDEAU, vice president and manager of the Franco Dominion Development Corporation, in Oklahoma City, will sail for France on the Normandie, November 12. During his stay abroad he will contact refiners, including friends made in Tulsa last May at the International Petroleum Exposition. Mr. Benardeau, who was at the International Petroleum Association convention in Tulsa last week, says 300,000 to 500,000 bbls. of East Texas crude could be disposed of in the French market monthly.

W. C. WENZEL, manager of the petroleum division of Dun & Bradstreet, Inc., New York, has recovered from an appendectomy which he underwent at St. Elizabeth's Hospital last month, and he expects to be back on the job this week.

PROF. CECIL E. BOORD, instructor in the chemistry department of the Ohio State University Research Foundation, has been named to direct work looking to preparation of pure hydrocarbons of the gasoline type so that their engine combustion characteristics can be determined. ALBERT L. HENNE, a member of the university faculty, will assist Professor Boord. The project, sponsored by the American Petroleum Institute, will develop several dozen pure gasoline hydrocarbons in quantities sufficient for testing in engines and to shed light on what makes the wheels go round in motor vehicles.

DR. CECIL G. LALICKER has joined the faculty of Oklahoma University as assistant professor of geology and has charge of a course in oil well samples. Doctor Lalicker has been in the service of the Phillips Petroleum Company and the Sun Oil Company the last three years.

F. H. FILLINGHAM, manager of the South Bend, Ind., sales division of the Standard Oil Company of Indiana, will be transferred to assistant general manager in charge of the western division at the Chicago general offices November 1, and N. R. GRIMSHAW, assistant general manager of the western division, will be transferred to manager at South Bend. Mr. Fillingham joined Standard of Indiana in 1913 as a stenographer in Detroit, Mich. Mr. Grimshaw became associated with this company in 1906 as a lubricating salesman in the same city. R. H. DODD, manager at Minot, N. D., will be transferred to the same position at Fargo, N. D., November 1, when the Minot office is to be closed and that division consolidated with the Fargo division.

## Do You Remember?

From The Oil and Gas Journal Files

### 25 YEARS AGO

*U.S.G.S. report on casinghead gasoline for the year 1912 shows 250 plants in the United States manufactured 12,081,179 gallons. In 1911 a total of 176 plants manufactured 7,425,839 gallons. The increase in 1912 was more than 62 per cent.*

*W. C. McBride is elected a director of the Commonwealth Trust Company in St. Louis. Mr. McBride recently gave his daughter $100,000 as a wedding present and donated another $100,000 to a St. Louis church. He made it in oil.*

*John B. Young, 71, for 35 years with the Standard Oil Company's pipe lines, dies in Philadelphia, Pa.*

*Isaac C. Ralph, of the widely known oil-producing firm of Ralph Brothers, dies in Bradford, Pa., at the age of 69 years.*

### 20 YEARS AGO

*The gasolineless Sunday, a war time measure, has been called off by the Fuel Administration.*

*Peter Theobold, of Titusville, Pa., one of the organizers of the Pure Oil Company, and a veteran refiner, dies in Titusville.*

*Louis Lock, credited with having discovered and developed the Monroe gas field in Louisiana, dies in Fort Worth, Tex.*

*Lauren J. Drake, deceased, late president of the Standard Oil Company of Indiana, left an estate appraised at $130,000. His widow was the sole legatee.*

### 10 YEARS AGO

*Daniel J. Moran has been elected president of the Marland Oil Company, succeeding Ernest W. Marland, who will continue as a director and member of the executive committee. Mr. Moran, is vice president of the Texas Company and has tendered his resignation to take effect November 1.*

*Max W. Ball resigns as president of Argo Oil Company to engage in consulting work as a geologist. He will remain in Denver, Colo.*

CLAUD H. ADAMS, chief inspector at Shell's Martinez refinery in the San Francisco Bay area, has been transferred to the Shell Development Company's laboratory in Emeryville.

C. L. SUHR, chairman of the Pennzoil Company, Oil City, Pa., returned to this country last week after spending several months traveling in Holland, Germany, France and England.

M. P. MATHENY has been named agent for service of the Petroleum Export Company, Inc., El Dorado, Ark., which has received a charter from the secretary of state. The incorporators besides Mr. Matheny are WALTER TROUT, Fort Worth, Tex., and L. F. WELLS, El Dorado.

G. HARVEY PORTER, managing director of the Oil Burner Institute, New York, has resigned effective October 31. He will devote his full time to duties as executive vice president of the Industrial Corporation of Baltimore, a position he has held in addition to that with the institute for the past three years.

J. P. RUCKMAN, district superintendent of the Humble Oil & Refining Company in the Gladewater district of the East Texas division, has been promoted to assistant superintendent of the West Texas-New Mexico division. W. C. ANDERSON, assistant district superintendent in the London district, East Texas division, succeeds Mr. Ruckman.

F. R. TUTHILL has been made chief scout for the Texas Company in California. His headquarters will be in Los Angeles, where he takes the place of W. L. JARVIS, who has been transferred to the production engineering department. Mr. Tuthill's former scouting post in the San Joaquin Valley has been taken by STEPHEN STROUD.

# PARAGRAPHS

JUDGE F. R. DOVE and his brother, T. CLARK DOVE, Shelbyville, Ind., last week received their first oil check for interests held by them in the Louden Township field of Illinois. They had heard of payoffs on good producing wells, so before opening the envelope they guessed at the amount of the check. They agreed $600 would be about the figure. It was $11.87.

H. B. HURLEY has been appointed assistant general superintendent of the Texas-New Mexico division of the Continental Oil Company, succeeding J. C. JOHNSTON, recently promoted to general superintendent of the Rocky Mountain division of the production department. R. L. CARPENTER was advanced to superintendent of the West Texas district, succeeding Mr. Hurley. Mr. Johnston, a graduate of the Michigan Agricultural College, joined Continental in 1919 as district superintendent in Tulsa. His headquarters will be in Denver. Mr. Hurley joined Continental as a lease foreman in 1926. Mr. Carpenter joined the Continental staff as a production foreman in 1926.

W. E. BRUBECK, geologist for the Humble Oil & Refining Company at Midland, Tex., for the past four years, has resigned to go to Mattoon, Ill., as a consulting geologist.

W. T. DOHERTY, division superintendent for the Humble Oil & Refining Company in charge of the West Texas and New Mexico division, with headquarters in Midland, Tex., has resigned to enter the oil business as an independent operator. Mr. Doherty entered the employ of Humble at Baytown in 1922. He served four years at Baytown, one year in the marketing department, at Houston, and nine in the petroleum engineering department, of which he had active charge for two years. He was transferred to the West Texas-New Mexico division in 1936. J. W. HOUSE, assistant division superintendent, succeeds him.

GEORGE H. FORSTER, comptroller of the Union Oil Company, active in the American Petroleum Institute and director of the Comptroller's Institute of America, has completed 25 years' uninterrupted service with Union, having entered the company's employ as an accountant in 1913.

WAITE PHILLIPS, independent oil operator of Tulsa, and Mrs. Phillips, have given a tract of 35,857 acres in New Mexico to the Boy Scouts of America, along with $50,000 in cash for use in central development for Boy Scout use of the land. The land is at the northern tip of the big Phillips ranch in Colfax County. Mr. Phillips said the gift was made because he has "great faith" in the Boy Scout movement. A few weeks ago Mr. and Mrs. Phillips gave their magnificant residence, Philbrook, to Tulsa for use as an art and Indian muesum.

COL. T. H. BARTON, president of the Lion Oil Refining Company of El Dorado, Ark., is back at his desk after a California trip.

J. H. PRESSLEY, Dallas, Tex., manager of the Southwest division offices of the Sun Oil Company, started for Miami, Fla., last week, accompanied by his family, for a belated vacation.

HARRY C. FERRELL, New Orleans, La., merchandising assistant of the Louisiana division of the Standard Oil Company of Louisiana, has been elected commander of the Carrollton post of the American Legion in New Orleans.

D. D. GIBSON is to continue as superintendent of the D. D. Gibson refinery at Thermopolis, Wyo., operation and management of which have been taken over by the Empire State Oil Company following its purchase of interests of Gray & Bauer in the plant. A branch office for the Empire will be established at the plant.

FREDERICK G. CLAPP, geologist, will return to this country in the near future from Europe, where he spent several months, most of the time in Northeast Iran and Afghanistan, where he supervised geological work carried on by the Seaboard Oil Company of Delaware and associates before the concessions were abandoned.

DR. WALTER S. LANDIS, formerly professor of metallurgy at Lehigh University and now chief technologist for the American Cyanamid Company, has been elected to receive the Perkin Medal of the Society of Chemical Industry for 1939. The medal, awarded annually for valuable work in applied chemistry, will be presented on January 6, 1939, at a meeting at the Chemists' Club, in New York.

## Helped to Win Medals

John T. O'Neil has done right well in the oil industry, but a suspicion persists that he is more proud of the fact he was a member of the American Olympic Rugby football teams which won the world title medals in 1920 and 1924. Mr. O'Neil left the University of Santa Clara to serve two years oversea with the Fourth Division in the World War. Upon his return he entered the livestock business in California, continuing his activity, however, in football sport, which had engaged his enthusiasm at college.

*JOHN T. O'NEIL*

Mr. O'Neil entered the oil business in Montana with his two brothers, Louis B. and Ignatius P. O'Neil. They operated as the International Refining Company and sold out to the California Petroleum Corporation for $5,000,000. In 1930 Mr. O'Neil moved to San Antonio, Tex., and took part in the oil development of Southwest Texas. During his association with the late C. W. Atkins in the Santa Clara Oil & Development Company and its successor, the Wellington Oil Company, Ltd., he shared in important discoveries of that region, including the prolific Seven Sisters and Loma Vista fields in Duval County and the Clara Driscoll, London and South Clara Driscoll fields in Nueces County.

With extensive production in the Laredo district and the lower Gulf Coast, Mr. O'Neil has been turning his attention to the chalk producing region west of San Antonio, where the Wellington company holds large leases.

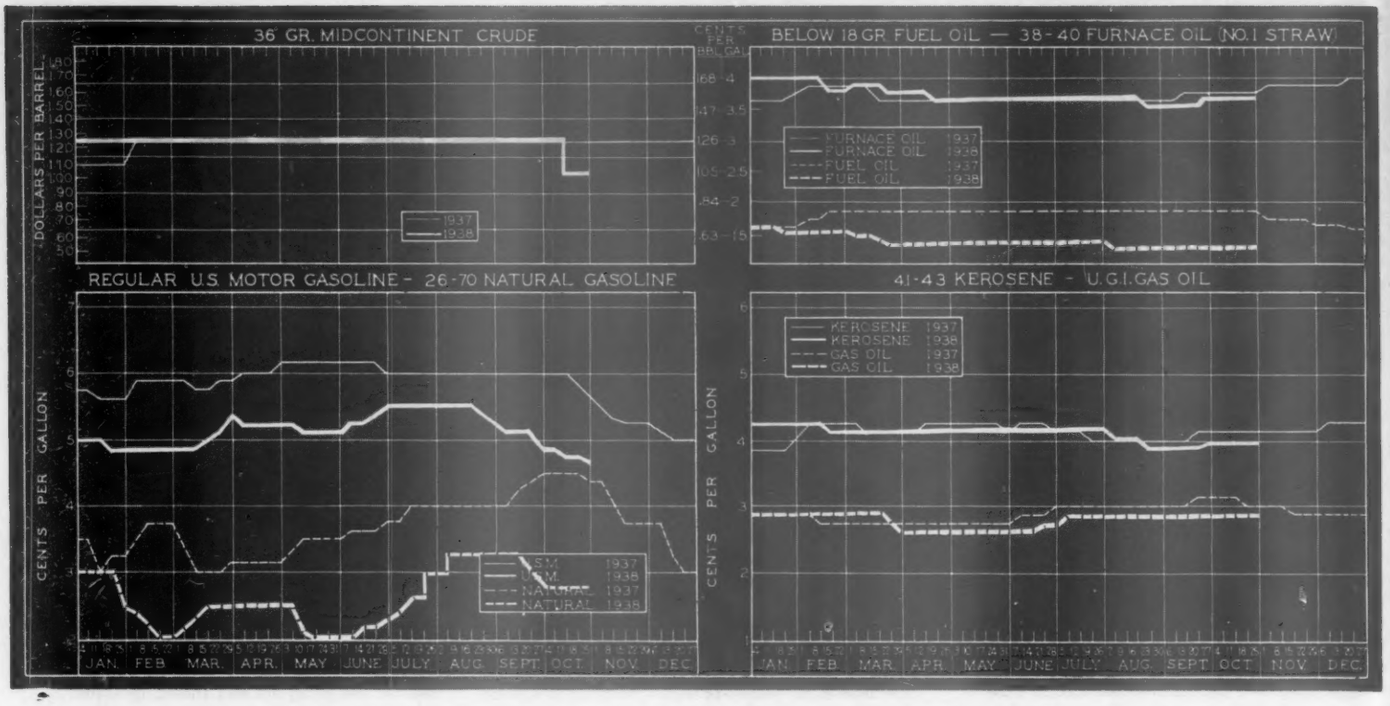
JOHN R. BOETTCHER, JR., president of the Metropolitan Philadelphia Association of Petroleum Retailers, Philadelphia, Pa., suffered shock and a fracture of the arm in an automobile accident last week.

JUDSON WOOD, vice president of the Mene Grande Oil Company, Caracas, Venezuela, has returned to South America after visiting several weeks in this country. He was accompanied by Mrs. Wood and their two children.

REESE H. TAYLOR, a director of the Union Oil Company of California, was elected president of the company at a meeting of the directors in Los Angeles Monday of this week. L. P. ST. CLAIR, formerly president, was elevated to chairman of the board. Mr. Taylor is president of the Consolidated Steel Company.

DR. J. V. N. DORR, New York, will receive the Chemical Industry Medal of the Society of Chemical Industry at a joint meeting of the American section of the Society of Chemical Industry and the American Chemical Society on November 4. The medal is awarded annually for valuable application of chemical research to industry. Doctor Dorr is president of the Dorr Company, Inc.

THOMAS H. KENNEDY, retired oil producer and banking executive, and Mrs. Kennedy, recently observed the fiftieth anniversary of their marriage in Bradford, Pa. Mrs. Kennedy was Anna E. Schonblom, daughter of the late O. F. Schonblom, for many years president of the Bradford National Bank. Mr. Kennedy recently donated $100,000 to the Bradford Hospital Association, to be used in building a Kennedy unit to the hospital, and $25,000 to the McKean County Children's Home in Bradford, to be used in building Kennedy Hall.




**Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)**

# *Latest Cut in Group 3 Gasoline Prices Regarded as of Minor Significance*

**By T. F. SMILEY**

Another eighth-cent off all grades made the Group 3 gasoline market look this week as though it had suffered another setback, but observers were disposed to regard this latest cut as without important significance, and they predicted there would be no further reductions unless crude prices should be lowered again—an increasingly remote possibility in most minds.

### Seen as Cheering Omen

There was a note of hopefulness in discussions of the meeting of Mid-Continent refiners in Fort Worth, Tex., called for Wednesday of this week, to consider suggestions for extending the scope of the Interstate Oil Compact to include refining operations. Although the proposed step involves so many problems that no decisive action was looked for in the immediate future, the very fact that the President of the United States had taken cognizance of the refining industry's plight and expressed approval of the principle of interstate regulation of output, was seen as a cheering omen.

The recent 20-cent cut in the price of Mid-Continent crude is calculated roughly to represent a saving of three-eighths of a cent in the cost of each gallon of gasoline. So even though he gets an eighth-cent less for the gallon, the refiner still is a quarter-cent ahead. The morsel of comfort extracted from this bit of mathematics is pretty well dissipated, however, by the fact that refiners more than discounted the crude price cut before it actually was made, making the past week's reduction in the tankcar price of gasoline look like clear loss after all.

The demoralized state of the gasoline market has exacted heavy toll from refiners. "Our losses in September would knock your eye out," remarked the sales manager of one large company. Others commented in like strain. How long some of the less firmly intrenched organizations can continue to operate is becoming an increasingly serious question. Indicative of the low state the gasoline market has reached is the fact that the 41-43 grade of kerosene is bringing a quarter-cent more a gallon than low-octane gasoline.

Reports regarding the volume of gasoline business were not all of the same tone. Some refiners said they saw no improvement, but a greater number told of increases. "Our shipments have been heavier during the past two weeks than in any similar period since last May," one sales manager said. Others spoke in the same vein.

Heating oils were moving in better volume, and in this division the lower crude prices help a little, as there has been no weakening in the quotations on light distillates. To be sure, prices are under those of a year ago, but they afford a little profit at their present levels. The colder weather which swept over the Middle West early this week acted as a tonic to the furnace oil market, and there was general expectation of heavier shipments and firmer prices. This division has been unusually slow in getting started this year on account of the exceptionally long stay of warm weather in October.

### More Life in Naturals

Natural gasoline was exhibiting more signs of life. Demand was increasing, and there was growing evidence that supplies which refiners had in their storage tanks were nearing exhaustion. Business in hand for November was much better than that which manufacturers had on their books a month ago. Inquiries are in the market for a cargo and for a half cargo for export. Closing of this business should improve the natural gasoline situation on the Gulf Coast. Prices were unchanged, but an opinion expressed was that a little rise might have been seen this week but for the eighth-cent drop in quotations on the refined product.

Wax was not quite so firm, but prices were holding. The lubricant group showed no improvement, and heavy industrial fuels continued to lag.

### Refined Oil Market Barometer

Rising industrial activity beginning to impart faint signs of improvement to the heavy fuel market, and cold days in the Middle West stimulating the furnace oils. Gasoline consumption exceptionally heavy for October, but uneconomic practices continue to injure the market. Natural gasoline steadier, with better business in sight. Lubricant group still feeble. Demand for wax easing.

**MID-CONTINENT.** Gasoline lower. Heating oils firmer, in response to colder weather.

**EAST COAST.** Pleasant weather stimulating gasoline consumption. Industrial fuels stronger.

**GULF COAST.** Gasoline weak. Demand for heating oils increasing. Prices unchanged.

**CALIFORNIA.** Domestic Diesel prices down. Stove oil and burning oil reduced.

**PENNSYLVANIA.** Neutrals less vigorous. Gasoline irregular. Spot fuel oil scarcer.

**CHICAGO.** Less retail price-cutting in gasoline. Tankcar prices lower. Heavy fuels better.

# October Gasoline Consumption in East Is Unusually Large

By H. STANLEY NORMAN

NEW YORK, Oct. 24.—Mild to balmy temperature prevailed last week along the Northeast Atlantic Coast stimulating motor fuel consumption to record or near-record levels for October. Highway congestion in and near New York City over the previous week-end was comparable to midsummer conditions. Thousands were reported at metropolitan area beaches, giving an idea of the mild weather conditions prevailing. Jobbers and dealers ordered liberally against motor fuel supply contracts and in most instances were forced to press for prompt delivery. The tendency to liquidate motor fuel stocks to minimum working levels at the start or middle of September obtained again this year with the result that several jobbers were compelled to make rapid replacement purchases after each of the two most recent week-ends. There is abundant indication that domestic motor fuel demand may set new October highs in this section of the country. Since September gasoline consumption was disappointing both in this area and in the nation as a whole the spurt in October demand is particularly gratifying to refiners and jobbers.

Another factor influencing jobbers and dealers to liquidate stocks was the crude oil price cut. Some anticipated a more drastic reaction in the product markets than has developed to date and they were anxious to take advantage of this unmaterialized possibility of profiting on inventory position.

The tankcar and tank-wagon gasoline markets in most eastern key consuming centers are unchanged from the preceding week.

There appears to be little if any change in the New York Harbor market which is reasonably firm at 6 cents per gallon for 65-octane motor fuel in barges and 6¼ cents in tankcars. Occasional reports are heard that these prices can be shaded by a quarter of a cent per gallon in one or two directions, but the volume of trade represented is unimportant. Under prevailing conditions it will be no more than a week or two until the curves of motor fuel stocks for 1937 and 1938 will intersect and some are beginning to hope that supply will not exceed 70,000,000 bbls. at the end of December.

The factors which contributed to wholesome motor fuel consumption over the past two weeks have worked to the contrary on light fuel oils for domestic heating appliances. Despite the full demand existing at the moment for light fuel oils there has been little indication that suppliers are pushing supplies on the market at concession prices. The light fuel oil market is reported firm on both the Atlantic and Gulf coasts with stocks of this material, although at higher than desirable levels, apparently of no major concern at the moment.

There has been a distinct improvement in demand for industrial fuel during the past two weeks. With industrial activity unmistakably on the increase refiners anticipate that stock reductions will prevail in the immediate future, a trend that made its first appearance of months in the statistics for the week ended October 8 and continued through October 15. New York prices and those at other important Atlantic terminals such as Philadelphia, Boston, Baltimore, Providence and Charleston are reported unchanged. Bunker C fuel oil in New York is generally quoted at 95 cents per barrel at terminal docks. Movement of supplies for the automobile manufacturing industry by water and rail has picked up considerably during the past six weeks, but has not yet reached the proportions anticipated by the middle of November. This movement of raw materials to factories and assembly plants and return of the 1939 models to dealers throughout the country is playing an important role in boosting industrial fuel oil consumption to more satisfactory levels.

Kerosene is without particular feature in the Gulf Coast and eastern seaboard markets, but demand is holding to approximately normal levels and the price structure is steady. In fact, western Pennsylvania refiners are holding kerosene at fractionally higher quotations with several plants unable to supply material on open market inquiry. Kerosene movement is reasonably brisk from the Gulf Coast currently at unchanged prices.

Reports were heard in New York last week that gasoline prices are a shade softer on the Gulf Coast, but New York brokers were still actively seeking suppliers willing to enter long-term contracts from inland points in Texas, Louisiana and the Mid-Continent, holding the impression that better bargains might exist in those territories. The impression that Gulf Coast prices are softer was not shared by all in the trade. In fact, a majority of observers held the opinion that prices prevailing before the crude oil cut late in September were at least unchanged and in view of the stock position think that further reductions are unlikely in the immediate future. A small cargo of 64-66-octane 375-e.p. export gasoline was sold to a French buyer at 4½ cents per gallon on the Gulf Coast two weeks ago, which was about an eighth or a quarter under most previous quotations. Some said that efforts to duplicate this price by other export buyers had proved unsuccessful. Export buyers are still displaying a cautious attitude, apparently fearing the impact of crude price reductions on product markets has been delayed and that further reactions will be forthcoming. Refiners, on the other hand, maintain the crude reduction had been reflected in the product market for several weeks in advance of the cut and that the general market level is likely to remain at least near present figures until factors other than those currently present influence conditions.

A few western Pennsylvania refiners lowered their spot quotations last week on 65-octane gasoline by an eighth to a quarter of a cent per gallon bringing them in parity with competitive material from Michigan. Suppliers in western Pennsylvania were offering this material at 6¼ to 6⅜ cents per gallon to the tankcar trade and an occasional offering at still lower figures was reported. As on the Gulf and eastern coasts, however, kerosene was in reasonably strong position in western Pennsylvania.

Movement of neutral oils, a feature of the Pennsylvania lubricating market for the past month or six weeks, has tapered off considerably, but prices are fairly well maintained at preceding levels. Bright stocks are without particular feature and trading is following rather routine lines. Fuel oil is growing more difficult to locate in western Pennsylvania for open market dealing, but contract customers will be provided with adequate supplies from stocks and current production. Refiners are less willing at the moment to deal in the open market until they can gain a better perspective of their contract customer fuel oil requirements.

Reports were heard that the prevailing price of 3⅞ cents per gallon for light fuel in barges in New York could be shaded slightly, but most sellers said they were clinging to their range of 3⅞ cents in barges and 4 cents to the tankcar trade.

## A. P. I. Weekly Refinery Statistics

**Week Ending October 22, 1938**

| | Capacity reporting (per cent) | Daily crude runs (bbls.) | Total gasoline stocks | Gas oil and fuel oil stocks |
|---|---|---|---|---|
| East Coast | 100.0 | 503,000 | 17,640,000 | 16,555,000 |
| Appalachian | 85.9 | 103,000 | 2,781,000 | 885,000 |
| Indiana, Illinois and Kentucky | 89.5 | 488,000 | 10,342,000 | 9,405,000 |
| Oklahoma, Kansas and Missouri | 81.6 | 250,000 | 6,006,000 | 4,712,000 |
| Inland Texas | 50.3 | 105,000 | 1,609,000 | 2,072,000 |
| Texas Gulf | 88.9 | 755,000 | 9,802,000 | 14,295,000 |
| Louisiana Gulf | 97.3 | 115,000 | 1,956,000 | 3,062,000 |
| North Louisiana and Arkansas | 55.0 | 42,000 | 426,000 | 824,000 |
| Rocky Mountains | 54.2 | 41,000 | 1,060,000 | 788,000 |
| California | 90.0 | 494,000 | 12,533,000 | 96,838,000 |
| Total reported | 85.6 | 2,896,000 | 64,155,000 | 149,436,000 |
| Estimated unreported | ..... | 334,000 | 3,540,000 | 3,360,000 |
| *Estimated total | ..... | 3,230,000 | 67,695,000 | 152,796,000 |
| *Estimated total previous week | ..... | 3,310,000 | 68,426,000 | 152,648,000 |
| *October 23, 1937 | ..... | 3,380,000 | 66,554,000 | 119,634,000 |

*Bureau of Mines, currently estimated.

## Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

| | |
|---|---|
| Week ending October 15, 1938 | 277,001,000 barrels |
| Week ending October 8, 1938 | 279,007,000 barrels |
| Week ending October 16, 1937 | 307,897,000 barrels |

Figures do not include stocks of heavy, refinable California crude.

# Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of October 25, 1938

### Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

### Standard Oil Co. (Indiana)

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank wag. | Dlr. | Inc. tax | tank-wag. |
| Chicago, Ill. | 15.1 | 12.6 | 4.0 | 10.0 |
| Decatur | 15.1 | 13.6 | 4.0 | 10.0 |
| Joliet | 15.1 | 13.6 | 4.0 | 10.0 |
| Peoria | 15.1 | 13.6 | 4.0 | 10.0 |
| Quincy | 14.9 | 12.9 | 4.0 | 9.8 |
| Davenport, Ia. | 15.1 | 13.6 | 4.0 | ‡10.0 |
| Des Moines | 14.9 | 13.4 | 4.0 | ‡9.8 |
| Mason City | 15.3 | 13.8 | 4.0 | ‡10.2 |
| Duluth, Minn. | 16.9 | 15.4 | 5.0 | 10.8 |
| Mankato | 16.5 | 15.0 | 5.0 | 10.4 |
| Minneapolis | 16.5 | 15.0 | 5.0 | 10.4 |
| LaCrosse, Wis. | 16.5 | 15.0 | 5.0 | 10.4 |
| Green Bay | 16.9 | 15.4 | 5.0 | 10.3 |
| Milwaukee | 16.3 | 14.8 | 5.0 | 10.2 |
| Detroit, Mich. | 14.3 | 12.8 | 4.0 | 9.0 |
| Grand Rapids | 14.8 | 13.05 | 4.0 | 9.7 |
| Saginaw | 15.8 | 14.3 | 4.0 | 9.3 |
| Evansville, Ind. | 16.6 | 15.1 | 5.0 | †10.5 |
| Indianapolis | 16.8 | 15.3 | 5.0 | †9.5 |
| South Bend | 17.1 | 15.6 | 5.0 | †9.0 |
| Fargo, N. Dak. | 16.7 | 15.2 | 4.0 | 11.6 |
| Minot | 18.0 | 16.5 | 4.0 | 12.9 |
| Huron, S. Dak. | 17.0 | 15.5 | 5.0 | 10.9 |
| Kans. City, Mo.* | 14.4 | 12.9 | 4.0 | 7.5 |
| St. Louis* | 14.7 | 13.2 | 4.0 | 9.6 |
| St. Joseph | 14.4 | 12.9 | 4.0 | 9.3 |
| Wichita, Kans. | 13.9 | 10.6 | 4.0 | 7.8 |

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

### Stanolex Fuel Oil in Chicago

Effective August 1, 1938, f.o.b. Chicago tank-wagon prices: Standard range oil, 1-99 gallons, 9 cents; 100-149 gallons, 8.5 cents; 150 gallons and over, 8 cents. Stanolex fuel oil No. 1, 1-149 gallons, 8 cents; 150-399 gallons, 7 cents; 400 gallons and over, 6.5 cents. Stanolex furnace oil, 1-149 gallons, 8 cents; 150-399 gallons, 7 cents; 400 gallons and over, 6.5 cents. Stanolex grade A, 1-399 gallons, 5 cents; 400 gallons and over, 4 cents. Stanolex grade B, 1-799, gallons 5 cents; 800 gallons and over, 4 cents.

### Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank-wag. dlr. | Tank-car con'r. | Inc. tax | tank wag. |
| Atl'tic City, N. J. | 12.9 | 10.9 | 4.0 | 8.0 |
| Newark | 12.9 | 10.9 | 4.0 | 8.0 |
| Annapolis, Md. | 14.35 | 12.85 | 5.0 | 9.5 |
| Baltimore | 13.75 | 12.25 | 5.0 | 9.0 |
| Cumberland | 16.15 | 13.65 | 5.0 | 10.0 |
| Wash'g'n, D. C. | 12.0 | 10.50 | 3.0 | 9.5 |
| Danville, Va. | 16.95 | 14.45 | 6.0 | 12.9 |
| Norfolk | 15.75 | 13.25 | 6.0 | 11.5 |
| Petersburg | 16.05 | 13.55 | 6.0 | 11.7 |
| Richmond | 16.05 | 13.55 | 6.0 | 11.7 |
| Roanoke | 17.25 | 14.75 | 6.0 | 12.9 |
| Charles'n, W. V. | 16.55 | 14.05 | 6.0 | 12.6 |
| Parkersburg | 14.85 | 13.35 | 6.0 | 11.2 |
| Wheeling | 15.75 | 14.35 | 6.0 | 12.2 |
| Charlotte, N. C. | 18.15 | 15.65 | 7.0 | 12.1 |
| Hickory | 18.65 | 16.15 | 7.0 | 12.5 |
| Mt. Airy | 18.45 | 15.95 | 7.0 | 12.3 |
| Raleigh | 17.75 | 15.25 | 7.0 | 11.6 |
| Salisbury | 18.25 | 15.75 | 7.0 | 12.2 |
| Charleston, S. C. | 16.75 | 14.25 | 7.0 | 10.6 |
| Columbia | 17.75 | 15.25 | 7.0 | 11.6 |
| Spartanburg | 18.45 | 15.95 | 7.0 | 12.4 |

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be the equivalent to the dealer price less .5 cent per gallon.

While the above prices continue at Atlantic City and Newark, N. J., dealers will pay a net price of 8.4 cents per gallon for Essolene. Dealers having pumps marked only "Esso, Essolene and 'Standard White'" gasoline will pay 7.9 cents for Essolene. Price basis to all other undivided dealers above is Essolene dealer tank-wagon price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

### Southern District

STANDARD OIL CO. OF KENTUCKY

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank-wag. | Net dlr. | Inc. tax | tank-wag. |
| Atlanta, Ga. | 20.5 | 17.5 | 7.0 | 11.0 |
| Augusta | 20.0 | 17.0 | 7.0 | 10.0 |
| Macon | 20.0 | 17.0 | 7.0 | 11.0 |
| Savannah | 19.0 | 16.0 | 7.0 | 9.0 |
| Birm'ham, Ala. | 21.0 | 18.0 | 8.0 | 9.5 |
| Mobile | 21.0 | 18.0 | 9.0 | 8.5 |
| Montgomery | 21.0 | 19.0 | 9.0 | 10.5 |
| Jackson, Miss. | 19.5 | 16.5 | 7.0 | 9.5 |
| Vicksburg | 19.5 | 16.5 | 7.0 | 9.0 |
| Jacks-ville, Fla. | 20.0 | 17.0 | 8.0 | 8.0 |
| Miami | 20.0 | 17.0 | 8.0 | 8.0 |
| Pensacola | 21.0 | 18.0 | 9.0 | 8.0 |
| Tampa | 20.0 | 17.0 | 8.0 | 8.0 |
| Lexington, Ky. | 19.5 | 16.5 | 6.0 | 10.0 |
| Covington | 18.0 | 15.0 | 6.0 | 9.5 |
| Louisville | 18.0 | 15.0 | 6.0 | 9.0 |
| Paducah | 18.0 | 15.0 | 6.0 | 10.0 |

*Includes 1-cent state tax.

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price. Effective June 4, 1938, 2 cents per gallons discount eliminated from all kerosene markets in Mississippi, Alabama, Georgia, and Florida, markets being reduced correspondingly to a net basis.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent.

### Rocky Mountain District

CONTINENTAL OIL CO.

| | Gasoline | | Kero. |
|---|---|---|---|
| | Dealer | Inc. tax | tank-wag. |
| Denver, Colo. | 15.5 | 5.0 | 11.5 |
| Grand Junction | 19.0 | 5.0 | 15.0 |
| Pueblo | 16.5 | 5.0 | 10.5 |
| Casper, Wyo. | 17.0 | 5.0 | 11.5 |
| Cheyenne | 13.0 | 5.0 | 13.0 |
| Billings, Mont. | 19.0 | 6.0 | 13.0 |
| Butte | 19.5 | 6.0 | 15.5 |
| Helena | 20.0 | 6.0 | 15.5 |
| Great Falls | 19.0 | 6.0 | 15.5 |
| Salt Lake City, Utah | 17.0 | 5.0 | 16.0 |
| Twin Falls, Idaho | 21.0 | 6.0 | 18.0 |
| Boise | 19.0 | 6.0 | 18.0 |
| Albuquerque, N. M. | 17.5 | *6.5 | 12.0 |

*Includes city tax of .5 cent.

### Ohio

STANDARD OIL CO. OF OHIO

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank-wag. con'r. | Di-vided dlr. | Inc. tax | tank-wag. |
| Ohio points | 16.0 | 15.0 | 5.0 | *13.0 |

*Includes state tax of 1 cent.

### New York and New England

SOCONY-VACUUM OIL CO., INC.

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | T'wag. dealer | T'car consr. | Inc. tax | tank wag. |
| Albany | 14.3 | 12.3 | 5.0 | 8.0 |
| *Met. N. Y.: | | | | |
| M'htt'n., Bronx | 13.4 | 12.25 | 5.0 | 8.0 |
| Staten Island | 13.4 | 12.25 | 5.0 | 8.0 |
| Q'ns. & Bklyn. | 13.4 | 12.25 | 5.0 | 8.0 |
| Buffalo | 13.6 | 12.6 | 5.0 | 7.5 |
| Rochester | 14.0 | 13.2 | 5.0 | 8.5 |
| Syracuse | 14.0 | 12.9 | 5.0 | 9.0 |
| Boston, Mass. | 12.5 | 11.0 | 4.0 | 7.5 |
| Portland, Me. | 14.0 | 12.25 | 5.0 | 8.75 |
| Manch'ter, N. H. | 14.5 | 12.8 | 5.0 | 8.5 |
| Burlington, Vt. | 14.7 | 12.65 | 5.0 | 9.5 |

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent.

Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

### Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank-wag. | Serv. sta. | Inc. tax. | tank-wag. |
| San Francisco | 17.5 | 18.5 | 4.0 | 11.5 |
| Los Angeles | 17.0 | 18.0 | 4.0 | 10.0 |
| Fresno, Calif. | 18.5 | 19.5 | 4.0 | 12.5 |
| Phoenix, Ariz. | 21.5 | 22.5 | 6.0 | *17.5 |
| Reno, Nev. | 20.5 | 21.5 | 5.0 | 13.5 |
| Portland, Ore. | 20.0 | 21.0 | 6.0 | 13.5 |
| Seattle, Wash. | 20.0 | 21.0 | 6.0 | 13.5 |
| Spokane | 23.0 | 24.0 | 6.0 | 16.5 |
| Tacoma | 20.0 | 21.0 | 6.0 | 13.5 |

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery; 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

### Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank-wag. dlr. | Tank-car con'r. | Inc. tax | tank-wag. |
| Phil'delphia, Pa. | 13.0 | 12.0 | 5.0 | 10.0 |
| Pittsburgh | 15.0 | 13.0 | 5.0 | 10.5 |
| Allentown | 14.25 | 12.75 | 5.0 | 10.5 |
| Erie | 14.5 | 13.0 | 5.0 | 10.0 |
| Scranton | 14.5 | 13.0 | 5.0 | 10.5 |
| Altoona | 15.0 | 13.0 | 5.0 | 10.5 |
| Dover, Del. | 13.5 | .... | 5.0 | 10.5 |
| Wilmington | 12.5 | .... | 5.0 | 9.75 |
| Springf'ld, Mass. | 13.5 | .... | 4.0 | 8.0 |
| Worcester | 13.0 | .... | 4.0 | 8.5 |
| Hartford, Conn. | 13.6 | .... | 4.0 | 7.0 |
| New Haven | 13.5 | .... | 4.0 | 7.0 |
| Providence, R. I. | 13.0 | .... | 4.0 | 8.0 |

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

### Nebraska

STANDARD OIL CO. OF NEBRASKA

| | Gasoline | | | Kero |
|---|---|---|---|---|
| | Tank-wag. | Dlr. | Inc. tax | tank wag |
| Omaha | 17.5 | 16.0 | 6.0 | 10.3 |
| McCook | 17.5 | 16.0 | 6.0 | 10.0 |
| Norfolk | 17.9 | 14.9 | 6.0 | 10.7 |
| North Platte | 18.3 | 15.4 | 6.0 | 11.0 |
| Scottsbluff | 19.0 | 13.9 | 6.0 | 11.8 |

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935

### Central South District

STANDARD OIL CO. OF LOUISIANA

| | Gasoline | | | Kero- |
|---|---|---|---|---|
| | Tank-wag. dlr. | Tank-car con'r. | Inc. tax | tank-wag. |
| N. Orleans, La. | 19.25 | 16.75 | *10.0 | †11.0 |
| Baton Rouge | 17.25 | 14.75 | 8.0 | ‡10.5 |
| Alexandria | 17.25 | 14.75 | 8.0 | ‡12.5 |
| Lafayette | 17.50 | 15.00 | 8.0 | ‡12.5 |
| Lake Charles | 17.25 | 14.75 | 8.0 | ‡12.5 |
| Shreveport | 16.00 | 13.50 | 8.0 | ‡11.0 |
| Knoxville, Tenn. | 20.50 | 18.00 | 8.0 | 14.5 |
| Memphis | 18.50 | 16.00 | 8.0 | 12.5 |
| Chattanooga | 20.00 | 17.50 | 8.0 | 14.0 |
| Nashville | 19.50 | 17.00 | 8.0 | 12.0 |
| Bristol | 19.00 | 18.25 | 8.0 | 14.5 |

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon. Kerosene prices include 1-cent state tax.

### Oklahoma and Arkansas

CONTINENTAL OIL CO

| | Gasoline | | Kero. |
|---|---|---|---|
| | Dealer | Inc. tax | tank-wag. |
| Muskogee, Okla. | 14.5 | 5.0 | 7.0 |
| Oklahoma City | 13.5 | 5.0 | 7.0 |
| Tulsa | 12.0 | 5.0 | 6.0 |
| Ft. Smith, Ark. | 14.25 | 5.0 | 7.5 |
| Little Rock | 16.75 | 7.5 | 8.0 |
| Texarkana | 14.0 | 5.0 | 8.0 |

### Texas

| | Gasoline | | | Kero. |
|---|---|---|---|---|
| | Tank-wag. | Serv. sta. | Inc. tax. | tank-wag. |
| Dallas, Tex. | 14.0 | 17.0 | 5.0 | 8.0 |
| Fort Worth | 15.0 | 19.0 | 5.0 | 8.0 |
| Houston | 14.5 | 19.0 | 5.0 | 8.0 |
| San Antonio | 14.0 | 18.0 | 5.0 | 8.0 |

### Naphtha

STANDARD OIL CO. (INDIANA)

| | Tank-wagon* |
|---|---|
| Oleum spirits | 15.7 |
| V.M.&P. naphtha | 16.0 |
| Cleaners' naphtha | 15.0 |
| Stanisol | 15.0 |

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

### Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

| | Tank-wag. | Inc. tax | Kero. tank-wag. |
|---|---|---|---|
| Halifax, N. S. | 24.5 | 10.0 | 18.5 |
| St. John, N. B. | 24.5 | 10.0 | 18.5 |
| Montreal, Que. | 21.0 | 6.0 | 17.5 |
| Toronto, Ont. | 22.0 | 6.0 | 17.0 |
| Hamilton, Ont. | 22.0 | 6.0 | 17.0 |
| Winnipeg, Man. | 27.5 | 7.0 | 20.7 |
| Brandon, Man. | 28.1 | 7.0 | 22.9 |
| Regina, Sask. | 26.0 | 7.0 | 22.0 |
| Saskatoon, Sask. | 28.3 | 7.0 | 24.9 |
| Edmonton, Alta. | 26.5 | 7.0 | 21.5 |
| Calgary, Alta. | 23.5 | 7.0 | 19.0 |
| Vancouver, B. C. | 23.0 | 7.0 | 23.0 |

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

## Tank-Wagon Changes

Standard Oil Co. (Indiana) October 8 advanced tank-wagon and posted dealer gasoline .5 cent in Detroit and Grand Rapids; advanced posted dealer gasoline .5 cent in Wichita and Quincy; advanced tank-wagon kerosene as follows: 3.1 cents in Quincy, .6 cent in Green Bay, .5 cent in Detroit, Grand Rapids, Saginaw, South Bend, Kansas City, and Wichita. October 22, reduced dealer gasoline .5 cent in Chicago.

Standard Oil Co. of Kentucky October 3 reduced tank-wagon and net dealer gasoline .5 cent in Vicksburg, Birmingham, Mobile, Montgomery; advanced tank-wagon and net dealer gasoline .5 cent in Augusta and Macon, 1 cent in Savannah, 1½ cents in Atlanta. October 6 advanced tank-wagon and net dealer gasoline 2 cents in Jacksonville; reduced tank-wagon and net dealer gasoline .5 cent in Miami. September 22 reduced tank-wagon and net dealer gasoline 1 cent and October 6 advanced it 3 cents in Tampa. Reduced tank-wagon kerosene October 15, 1 cent in Covington and Louisville; October 14, .5 cent in Macon, Jackson, and Vicksburg; October 13, 1 cent in Atlanta and Savannah; October 6, 1 cent in Miami, 2 cents in Pensacola, .5 cent in Tampa; October 13, 2½ cents in Birmingham, .5 cent in Mobile. October 13, advanced tank-wagon kerosene .5 cent in Montgomery.

Standard Oil Co. (Nebraska) October 14 reduced dealer gasoline 1 cent in McCook.

Socony-Vacuum Oil Co., Inc., reduced tank-wagon kerosene 1 cent in Albany October 11, .5 cent in Boston September 30, and .75 cent in metropolitan New York May 1; advanced tank-wagon kerosene .5 cent in Buffalo May 1.

# Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of October 25, 1938

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

## Refinery Gasoline

**OKLAHOMA (Group 3)—**

| | | |
|---|---|---|
| U. S. Motor grades: | | |
| 62 oct. and below | .03¾ | .03⅞ |
| 63-66 octane | .04 | .04⅛ |
| 67-69 octane | .04⅜ | .04⅝ |
| 70-72 octane (regular) | .04⅝ | .04⅞ |
| 60-62 400 grades: | | |
| 62 oct. and below | .03¾ | .04 |
| 63-66 octane | .04 | .04¼ |
| 67-69 octane | .04⅜ | .04⅝ |
| 70-72 octane (regular) | .04⅝ | .04⅞ |
| 64-66 375 | .04 | .04¼ |
| 68-70 360 | .05 | .05¼ |

**NORTH TEXAS—**

| | | |
|---|---|---|
| U. S. Motor grades: | | |
| 62 octane and below | .03¾ | .04⅞ |
| 63-66 octane | .04 | .04¼ |
| 67-69 octane | .04⅜ | .04⅝ |
| 70-72 octane (regular) | .04⅝ | .04⅞ |
| 60-62 400 | .04 | .04¼ |
| 64-66 375 | .05 | .05¼ |

**NORTH LOUISIANA (Ark. and N. La. delivery)—**

| | | |
|---|---|---|
| U. S. Motor grades: | | |
| 62 octane and below | .04⅜ | .04½ |
| 63-66 octane | .04½ | .04⅝ |
| 67-69 octane | .04⅝ | .04⅞ |
| 70-72 octane (regular) | .05¼ | .05½ |

**ARKANSAS (Ark. and N. La. del.)—**

| | | |
|---|---|---|
| U. S. Motor grades: | | |
| 62 octane and below | .04¼ | .04⅜ |
| 67-69 octane | .05 | .05⅛ |

**CHICAGO (Based on Group 3)—**

| | | |
|---|---|---|
| U. S. Motor grades: | | |
| 62 octane and below | .03⅞ | .04⅛ |
| 63-66 octane | .04⅛ | .04⅜ |
| 67-69 octane | .04½ | .04¾ |
| 70-72 octane | .04¾ | .05 |
| 60-62 400 grades: | | |
| 62 octane and below | .03⅞ | .04⅛ |
| 63-66 octane | .04⅛ | .04⅜ |
| 67-69 octane | .04½ | .04¾ |
| 70-72 octane | .04¾ | .05 |
| 64-66 375 | .04⅜ | .04⅝ |
| 68-70 360 | .05 | .05¼ |

**PENNSYLVANIA (Inland refineries)—**

| | | |
|---|---|---|
| 58-60 U. S. Motor: | | |
| Below 60 octane | .05 | .05¼ |
| 65 octane | .06½ | .06¾ |
| 68-70 octane | .07 | .07¼ |

**CALIFORNIA (domestic movement)—**

| | | |
|---|---|---|
| 54-58 U. S. Motor | .06½ | .08 |
| 58-60 400, 65 oct. and higher | .07½ | .09 |

**EAST COAST (domestic)—**

| | | |
|---|---|---|
| U. S. Motor, 60-64.9 octane: | | |
| New York (Bayonne) | .06 | .06¼ |
| Philadelphia | .06 | .06¼ |
| Boston | .06¼ | .06½ |
| Baltimore | .06 | .06¼ |
| Charleston, S. C. | .06¾ | .07 |
| U. S. Motor, 65 and above: | | |
| *New York (Bayonne) | .06½ | .06¾ |
| Philadelphia | .06½ | .06¾ |
| Boston | .06½ | .06¾ |
| Baltimore | .06½ | .06¾ |
| Charleston, S. C. | .07 | .07¼ |

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

**GULF COAST (domestic)—**

| | | |
|---|---|---|
| U. S. Motor grades: | | |
| Below 60 octane | | .04⅝ |
| 60-64.9 | .04⅝ | .04⅞ |
| 65 octane and higher | .04⅞ | .05⅛ |
| 68-70 | .05⅛ | .05½ |

## Naphtha

**PENNSYLVANIA (Inland refineries)—**

| | | |
|---|---|---|
| 52-56 450 (blending) | .04¾ | .04⅞ |

## Natural Gasoline

**OKLAHOMA (Group 3)—**

| | | |
|---|---|---|
| Grade 26-70 | .02¾ | .03 |
| Grade 18-55 | | .03¼ |

**NORTH TEXAS—**

| | | |
|---|---|---|
| Grade 26-70 | .02¾ | .03 |
| Grade 18-55 | | .03¼ |

**CALIFORNIA—**

| | | |
|---|---|---|
| 75-85 375-390 | .06¼ | .07 |

**NORTH LOUISIANA (Ark. and N. La. delivery)—**

| | | |
|---|---|---|
| Grade 26-70 | | .03⅛ |

## Tractor Fuel

**OKLAHOMA (Group 3)—**

| | | |
|---|---|---|
| 40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p. | .03⅞ | .04 |
| 41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p. | .04⅛ | .04¼ |
| 46-48 gr., 210-230 l.b.p., 480 max., e.p. | .04½ | .04⅝ |

## Kerosene

(All kerosene water white)

**OKLAHOMA (Group 3)—**

| | | |
|---|---|---|
| 41-43 | .04 | .04⅛ |
| 42-44 | .04¼ | .04⅜ |

**NORTH TEXAS—**

| | | |
|---|---|---|
| 41-43 | .04 | .04⅛ |

**NORTH LOUISIANA (Ark. and N. La. delivery)—**

| | | |
|---|---|---|
| 41-43 | .04 | .04⅜ |

**ARKANSAS (Ark. and N. La. del.)—**

| | | |
|---|---|---|
| 41-43 | .04½ | .04⅝ |

**PENNSYLVANIA (Inland refineries)—**

| | | |
|---|---|---|
| 45 | .04⅞ | .05⅛ |
| 46 | .05 | .05¼ |
| 47 | .05⅛ | .05¾ |

**CHICAGO (Based on Group 3)—**

| | | |
|---|---|---|
| 41-43 | .04 | .04⅛ |
| 42-44 | .04¼ | .04⅜ |

**CALIFORNIA (Pac. Coast market)—**

| | | |
|---|---|---|
| 38-43 high burning test | .04¾ | .05¾ |

**NEW YORK (Bayonne, N. J.)—**

| | | |
|---|---|---|
| 41-43 | .04⅝ | .04¾ |

***GULF COAST (domestic)—**

| | | |
|---|---|---|
| 41-43 | | .04 |

*Barge price one-eighth cent lower.

## Furnace Oil

**OKLAHOMA (Group 3)—**

| | | |
|---|---|---|
| Range oil | .03⅞ | .04 |
| No. 1 prime white, 38-42 | .03¾ | .03⅞ |
| No. 1 straw, 38-40 | .03⅝ | .03⅞ |
| No. 2 straw, 32-36 | .03½ | .03¾ |
| No. 2 dark, 32-36 | .03⅜ | .03½ |
| No. 3 zero to 15, 28-32 | .03¼ | .03⅜ |
| No. 3, 15 and above, 28-32 | .02⅞ | .03 |

**NORTH TEXAS—**

| | | |
|---|---|---|
| No. 1 prime white, 38-42 | .03¾ | .03⅞ |
| No. 1 straw, 38-40 | .03⅝ | .03⅞ |

**NORTH LOUISIANA (Ark. and N. La. delivery)—**

| | | |
|---|---|---|
| No. 2, 32-36 | .03¼ | .03½ |

**ARKANSAS (Ark. and N. La. del.)—**

| | | |
|---|---|---|
| No. 2, 32-36 | | .03⅝ |

**CHICAGO (Based on Group 3)—**

| | | |
|---|---|---|
| Range oil | .03⅞ | .04⅛ |
| No. 1 prime white, 38-40 | .03¾ | .04 |
| No. 1 straw, 38-40 | .03⅝ | .03⅞ |
| No. 2 straw, 32-36 | .03¼ | .03⅝ |
| No. 2 dark, 32-36 | .03¼ | .03½ |
| No. 3, zero to 15, 28-32 | .03¼ | .03⅜ |
| No. 3, 15 and above, 28-32 | .02⅞ | .03 |

**NEW YORK (Bayonne, N. J.)—**

| | | |
|---|---|---|
| *No. 1 | .04½ | .04⅝ |
| *No. 2 | | .04 |
| *No. 4 | | .04 |

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

## Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

**OKLAHOMA (Group 3)—**

| | | |
|---|---|---|
| U.G.I. gas oil | .02⅞ | .03⅛ |
| No. 4, low pourpoint, 24-28 | 1.00 | 1.10 |
| No. 4, 15 and above, 24-28 | .85 | .90 |
| No. 5, low pourpoint, 18-22 | .70 | .75 |
| Below 18 fuel oil, industrial | .50 | .60 |

**NORTH TEXAS—**

| | | |
|---|---|---|
| U.G.I. gas oil | .02⅞ | .03⅛ |
| No. 4, low pourpoint, 24-28 | 1.00 | 1.10 |
| No. 5, low pourpoint, 18-22 | .70 | .75 |
| Below 18 fuel oil, industrial | .50 | .60 |

**NORTH LOUISIANA (Ark. and N. La delivery)—**

| | | |
|---|---|---|
| 10-14 fuel oil, industrial | .70 | .75 |

**CHICAGO (Based on Group 3)—**

| | | |
|---|---|---|
| U.G.I. gas oil | .02⅞ | .03 |
| No. 4, low pourpoint, 24-28 | 1.00 | 1.10 |
| No. 4, 15 and above, 24-28 | .85 | .95 |
| No. 5, low pourpoint, 18-22 | .70 | .80 |
| No. 5, 15 and above, 18-22 | .60 | .70 |
| No. 6, low pourpoint, 10-16 | .60 | .70 |
| No. 6, 15 and above, 10-16 | .35 | .45 |

**PENNSYLVANIA (Inland refineries)—**

| | | |
|---|---|---|
| 36-40 | .04 | .04⅝ |

**CALIFORNIA—**

| | | |
|---|---|---|
| Los Angeles: | | |
| 30-40 gas oil, per bbl. | 1.15 | 1.35 |
| 24 plus Diesel, per bbl. | 1.00 | 1.30 |
| 24 plus Diesel (bunkers) | 1.25 | 1.50 |
| 12-16 (bunkers at tidewater) | .80 | .90 |
| 10-16 (cargo lots) | .65 | .85 |
| 12-17 (tankcars) | .50 | .85 |
| 10-17 (high sulfur) | .45 | .70 |
| San Joaquin Valley: | | |
| 10-18 (tankcars) | .55 | .85 |
| 24 plus Diesel, per bbl. | 1.20 | 1.45 |
| San Francisco: | | |
| 24 plus Diesel, per bbl. | 1.40 | 1.45 |
| 24 plus Diesel (bunkers) | 1.45 | 1.55 |
| 10-16 (bunkers) | .90 | .95 |

**GULF COAST—**

| | | |
|---|---|---|
| No. 2 fuel | | .03½ |
| 43-47 Diesel | | .03½ |
| 48-52 Diesel | .03½ | .03⅝ |
| 53-57 Diesel | .03⅝ | .03¾ |
| Bunkers (bulk cargoes) | .60 | .65 |
| Bunker C (bunkers) | | .75 |

**NEW YORK (Bayonne, N. J.)—**

| | | |
|---|---|---|
| 27 plus, gas oil | | .04¼ |
| 28-30 Diesel (lighterage 6¼c per bbl.) | | 1.75 |
| 28-30 Diesel (tankcars) | .04¼ | .04½ |
| Bunker C (to ocean-going ships in N. Y. Harbor) | | .95 |
| Industrial fuel (tankcars) | .03¾ | .04 |

Lighterage charge 5c bbl. additional.

## Bright and Steam Refined

**OKLAHOMA (Group 3)—**

| | | |
|---|---|---|
| 190-200 D, 15-25 | | .19 |
| 150-160 D, 0-10 | .14¼ | .16 |
| 150-160 D, 15-25 | .13½ | .15½ |
| 150-160 E, 15-25 | .13 | .15 |
| 100-110 D, 0-10 | | .14½ |
| Steam refined: | | |
| 631 green (treated) | | .12½ |
| 600 dark green (untreated) | .04½ | .05 |

**PENNSYLVANIA—**

| | | |
|---|---|---|
| Bright stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash): | | |
| 10 pourpoint | .17 | .17½ |
| 15 pourpoint | .16 | .16½ |
| 20 pourpoint | .15 | .15½ |
| 25 pourpoint | .14 | .14½ |
| Steam refined: | | |
| 600 | .08 | .08½ |
| 650 | .10 | .10½ |
| 600 Pennsylvania flash | .10½ | .11 |
| 630 flash | .13½ | .14 |
| 600 Warren E filtered | .12½ | .13 |

## Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

**OKLAHOMA (Group 3)—**

| | | |
|---|---|---|
| 150-3 | | .09 |
| 180-3 | | .10 |
| 180-4 | | .09½ |
| 200-3 | | .10½ |
| 200-4 | | .10 |
| 250-3 | | .11½ |
| 250-4 | | .11 |
| 280-3 | | .12½ |
| 280-4 | | .12 |
| 300-6½ | | .13 |
| 400-3½ | | .14 |
| 100-2½ paraffin oil 15-20 pourpoint: | | .06 |
| 200-3 | | .10 |
| 200-4 | | .09½ |
| 250-3 | | .11 |
| 250-4 | | .10½ |
| 280-3 | | .12 |
| 280-4 | | .12½ |

**GULF COAST—**

| | | |
|---|---|---|
| Pale oils: | | |
| 200-3 | .07 | .07¼ |
| 300-3 | .07½ | .07¾ |
| 500-3½ | .08¼ | .08¾ |
| 750-3½ | .08⅝ | .09¼ |
| 1,200-3½ | .09½ | .09¾ |
| 1,500-4 | .09¾ | .10 |
| Red oils: | | |
| 200-5-6 | .07¼ | .07½ |
| 300-5-6 | .07¾ | .07½ |
| 500-5-6 | .08 | .08½ |
| 750 | .08¾ | .09 |
| 1,200-5-6 | .09¼ | .09½ |

**CALIFORNIA (moving to dom. market)—**

| | | |
|---|---|---|
| Pale oils: | | |
| 100-2½-3 | .07¼ | .08 |
| 200-2½-3 | .07¼ | .08 |
| 300-2½-3 | .07¼ | .08 |
| 400-3-4 | .07¼ | .08 |
| 450-3-4 | .07¾ | .08 |
| 550-3-4 | .09 | .11 |
| 600-3-4 | .09 | .11 |
| Red oils: | | |
| 200-4-5 | .07¼ | .08 |
| 300-5-6 | .07¼ | .08 |
| 350-5-6 | .09¼ | .11½ |
| 400-5-6 | .09¼ | .11½ |
| 450-5-6 | .09¼ | .11½ |
| 500-5-6 | .09¼ | .11½ |
| 600-5-6½ | .09¼ | .11½ |
| 700-6½ plus | .09¼ | .11½ |
| 750-6½ plus | .09¼ | .11½ |
| 900-6½ plus | .09¼ | .11½ |

**PENNSYLVANIA—**

| | | |
|---|---|---|
| 150 vis. at 70° color, 400-405 flash: | | |
| Zero pourpoint | .17 | .17½ |
| 10 pourpoint | .16 | .16½ |
| 15 pourpoint | .15 | .15½ |
| 25 pourpoint | .14 | .14½ |
| 200 vis. at 70° F., 3 color: | | |
| Zero pourpoint | .19 | .19½ |
| 10 pourpoint | .18 | .18½ |
| 15 pourpoint | .17 | .17½ |
| 25 pourpoint | .16 | .16½ |

## Wax and Petrolatum

(Prices per pound)

**OKLAHOMA (Group 3)—**

| | | |
|---|---|---|
| 124-126 (a.m.p.) w.c. scale | .02¼ | .02½ |

**PENNSYLVANIA (Inland refineries)—**

| | | |
|---|---|---|
| 122-124 (a.m.p.) w.c. scale | .0235 | .0245 |
| 124-126 (a.m.p.) w.c. scale | .0235 | .0245 |

**NEW YORK—**

| | | |
|---|---|---|
| Wax in bags fully refined: | | |
| 122-125 (a.m.p.) wax | | .0420 |
| 125-127 (a.m.p.) wax | | .0435 |
| 128-130 (a.m.p.) wax | | .0445 |
| 130-132 (a.m.p.) wax | | .0455 |
| 133-135 (a.m.p.) wax | | .0500 |
| 135-137 (a.m.p.) wax | | .0515 |
| 124-126 (a.m.p.) w.s. | | .0185 |
| 124-126 (a.m.p.) y.s. | | .0185 |
| Petrolatum in barrels, carload lots: | | |
| Dark green | .02 | .02⅛ |
| Amber | .02⅝ | .02½ |
| Extra amber | .02⅝ | .02⅝ |
| Lily white | .05½ | .05½ |
| Snow white | .06½ | .06½ |
| Cream | .04½ | .04¼ |

## Export Prices

### GASOLINE

**GULF COAST—**

| | | |
|---|---|---|
| U. S. Motor | .04⅝ | .04⅝ |
| 60-62 400 | .04⅝ | .04¾ |
| 61-63 390 | .04⅝ | .05 |
| 64-66 375 | .04⅝ | .05 |

***LOS ANGELES—**

| | | |
|---|---|---|
| U. S. Motor grades: | | |
| 55-65 octane | | .05 |
| 65-69 octane | | .05¼ |
| Above 69 octane | | .05½ |

### KEROSENE

**GULF COAST—**

| | | |
|---|---|---|
| 41-43 prime white | | .04 |
| 41-43 water white | | .04 |

**LOS ANGELES—**

| | | |
|---|---|---|
| 41-43 water white | .05 | .05¼ |

### LUBRICANTS

(Pennsylvania Grade)

**NEW YORK (f.o.s. in bbls.)—**

| | | |
|---|---|---|
| Cylinder stocks: | | |
| 600 Warren E | .15 | .15½ |
| 600 S.R. unfiltered | .16 | .16½ |
| 630 S.R. unfiltered | .17 | .17½ |
| 600 flash, S.R. | .17 | .17½ |
| 630 flash, S.R. | .20½ | .21 |
| Bright stock: | | |
| 8 color | .16¼ | .16½ |

### NEUTRAL OIL

| | | |
|---|---|---|
| 200-3 color | .21½ | .22 |
| 150-3 color | .19½ | .20 |

### PARAFFIN WAX

**NEW YORK (prices per pound)—**

| | | |
|---|---|---|
| 123-125 a.m.p. | | .0375 |
| 125-127 a.m.p. | | .0387 |
| 128-130 a.m.p. | | .0412 |
| 133-135 a.m.p. | | .0437 |
| 135-137 a.m.p. | | .0455 |
| Crude scale: | | |
| 124-126 w.s. | .0185 | .0200 |
| 124-126 y.s. | .0185 | .0200 |

# Crude Oil Prices

## Oklahoma, Kansas, North Central and East Central Texas

East Texas (Oct. 11, 1938)* ..... $1.10
Van, Tex. (Oct. 11, 1938)* ..... .93
Talco, Tex. (Oct. 11, 1938)* ..... .55
Rodessa, Tex. .....
See North Louisiana gravity schedule

Cass and Panola counties, Texas
See gravity schedule
Altus and Tipton† ..... See note below
Cayuga, Tex. (Oct. 12) ..... .81
Clay Creek, Tex. ..... .85

*Humble Oil & Refining Co. †Gulf Refining Co.

Altus and Tipton, Okla., starting at below 25 degrees at 71 cents, 2-cent spread to 40 degrees and above at $1.03. East Texas price met by all buyers posting prices. Talco price adopted by Talco Pipe Line on October 11. Cayuga posted by Tide Water Associated Oil Co. Clay Creek posted by Sun Oil Co.

## Gulf Coast

Conroe, Tex. (Oct. 11, 1938)* ..... $1.27
Black Bayou and White Castle, La. (Oct. 11, 1938)† ..... See note below
Gibson, La. (Oct. 11, 1938)† ..... 1.04
Garden Island, La. (Oct. 12, 1938)‡ ..... 1.24
Lafitte, La. (Oct. 12, 1938)‡ ..... 1.04
Cleveland, Tex. (Oct. 12, 1938)¶ ..... 1.14
Hardin, Tex. (Oct. 12, 1938)¶ ..... 1.02
Tepetate, La. (Oct. 11, 1938)§ ..... 1.03
Villa Platte, La. (Oct. 11, 1938)§ ..... 1.03
Abbeville, La. (Oct. 11, 1938)§ .....
See note below
Bosco, La. (Oct. 13, 1938)‖ ..... 1.02
Creole, La. (Oct. 12, 1938)‖ ..... .96
Gueydan, Sweet Lake and Louise, La. (Oct. 13, 1938)‖ ..... See note below
Vinton, Edgerly, Starks, Hackberry, Timbalier Bay, Quarantine Bay, and Grand Bay, La. (Oct. 13, 1938)** ..... .....
Long Lake, Tex. (Oct. 13, 1938)** ..... 1.08
Segno and Wing (Oct. 13, 1938)** .....
See note below
Livingston (Oct. 11, 1938)† ..... 1.10
Gibson, La. (Oct. 11, 1938)† ..... 1.04

*Humble Oil & Refining Co. †Shell Petroleum Corp. ‡The Texas Co. §Continental Oil Co. ¶Magnolia Petroleum Co. ‖Pure Oil Co. **Gulf Refining Co.

Black Bayou, etc., starts at below 20 degrees at 79 cents; 20-20.9, 81 cents; 21-21.9, 83 cents, then a 3-cent spread to 26-26.9 degrees, 98 cents, and 27 degrees and over $1. Abbeville starts at below 36 degrees, $1.01, 2-cent spread to 40 degrees and over at $1.11. Gueydan, etc., starts at below 20 degrees, 79 cents, 3-cent spread to 26-26.9 degrees at $1, and 2-cent spread to 40 degrees and over at $1.28. Segno and Wing take Gulf Refining Co.'s Gulf Coast prices. Vinton, Edgerly, etc., schedule starts at below 18 gravity, 76 cents, 2-cent spread to 20-20.9 at 82 cents; then a 3-cent spread to 26-26.9 at $1; then a 2-cent spread to 34 degrees and over at $1.16.

## Southwest Texas

Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski (Oct. 11, 1938)* ..... $ .96
Pettus (Oct. 11, 1938)* ..... 1.29
Flour Bluff (Oct. 11, 1938)* ..... 1.27
Darst Creek (Oct. 12, 1938)† ..... .96
Darst Creek and Bruner (Oct. 13, 1938)‡ ..... .96
Luling (Oct. 12, 1938)† ..... .87
Lytton Springs (Oct. 12, 1938)† ... .99
Mirando (Oct. 12, 1938)† ..... ...
Government Wells (Oct. 13, 1938) .....
See note below

*Humble Oil & Refining Co. †Magnolia Petroleum Co. Pettus price adopted by Atlantic Crude Oil Purchasing Co. ‡Gulf Refining Co.

Government Wells posted by Sun Oil Co. starts at 20 gravity, 77 cents, 3-cent spread to 24-24.9 at 89 cents.

## North Louisiana and Arkansas

Smackover, Ark. (Oct. 5, 1938)* ... $ .73
Buckner, Magnolia and Village, Ark. (Oct. 5, 1938)* ..... See note below
Schuler, Jones sand ..... See note below
Tullos and Urania ..... .89
El Dorado east field ..... ....
Lisbon, La. (Sept. 19, 1938) .....
See note below

*Smackover posted by Standard Oil Co. of Louisiana, October 5, 1938; by Magnolia Petroleum Co., October 12; by Gulf Refining Co., October 13; McMillan Refining Co. and Cross Refining Co. met price. Tullos and Urania posted by Hunt Oil Co. and Arkansas Fuel Oil Co.

Schuler Jones sand schedule starts at below 25 degrees, 66 cents, with 2-cent spread to 40 and over at 98 cents; by Lion Oil Refining Co. on October 5, 1938; Schuler light Morgan sand crude takes North Louisiana gravity scale along with El Dorado and Champagnolle; by Lion Oil Refining Co., October 5: Buckner, Magnolia and Village schedules posted by Standard Oil Co. of Louisiana and Lion Oil Refining Co. on October 5; quote same prices as for Schuler Jones sand crude.

## Middle Western States

OHIO OIL CO.
(Effective October 13, 1938)

Lima, Ohio ..... $ .90
Illinois old fields ..... 1.05
Illinois basin ..... 1.15
Princeton, Ind. ..... 1.05
Western Kentucky ..... 1.10
Greendale, Porter and Crystal, Mich. (Oct. 13, 1938)* ..... .92½
Buckeye, Bentley, Edenville, Beaverton, Mich. (Oct. 13, 1938)* ... .90
Freeman, Mich. (Oct. 13, 1938)* .. .87
West Branch and Arenac, Mich. (Oct. 13, 1938)* ..... .74
Muskegon ..... 1.00
Eastern Kentucky:
Big Sandy River (Oct. 1, 1938)† . 1.22
Kentucky River (Oct. 1, 1938)† . 1.30

*Simrall Corp. †Ashland Refining Co.

## Rocky Mountain States

Dry Creek, Wyo. (Oct. 11, 1938)* .. $ .92
Elk Basin, Wyo. (Oct. 11, 1938)*† .. .90
Grass Creek, light, Wyo. (Oct. 11, 1938)*† ..... .90
Grass Creek, heavy (Oct. 11, 1938)† .40
Lance Creek, Wyo. (Oct. 11, 1938)* .77
Rock Creek, Wyo. (Oct. 11, 1938)*. 1.00
Iles, light, Colo. (Oct. 11, 1938)† .. .98
*(Continued on Page 239)*

## Crude Prices by Gravities

| | Oklahoma | Oklahoma and Kansas | North and Central Texas | Louisiana and Arkansas | East Central Texas | Gray County, Texas | Hutchinson and Carson counties, Texas | Raccoon Bend, Satsuma and Tomball, Texas | West Texas and Lea County, N. M. | Fort Collins and Wellington, Colo. | Anahuac and Dickinson, Texas | Refugio, Texas | Mirando and Duval Texas | Gulf Coast Texas | Cass and Panola counties, Texas | Beaumont and West Beaumont, Texas | Lockport, Iowa, Cameron Meadows, Louisiana | Artesia, Jackson and Maljamar, N. M. | Iowa, Louisiana |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Below 18 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | $.74 | .... | $.75 |
| 18-18.9 | .... | .... | .... | .... | .... | .... | .... | .... | $.53 | .... | $.74 | $.79 | $.74 | $.79 | .... | .... | .76 | .... | .77 |
| 19-19.9 | .... | .... | .... | .... | .... | .... | .... | .... | .53 | .... | .74 | .79 | .74 | .79 | .... | $.79 | .78 | .... | .79 |
| 20-20.9 | $.60 | $.70 | .... | .... | .... | .... | .... | .... | .55 | .... | .77 | .82 | .77 | .82 | .... | .82 | .80 | .... | .81 |
| 21-21.9 | .63 | .72 | .... | .... | .... | .... | .... | .... | .57 | .... | .80 | .85 | .80 | .85 | .... | .85 | .82 | .... | .83 |
| 22-22.9 | .66 | .74 | .... | .... | .... | .... | .... | $.95 | .59 | .... | .83 | .88 | .83 | .88 | .... | .88 | .85 | .... | .86 |
| 23-23.9 | .69 | .76 | .... | .... | $.78 | .... | .... | .97 | .61 | .... | .86 | .91 | .86 | .91 | .... | .91 | .88 | .... | .89 |
| 24-24.9 | .72 | .78 | $.71 | .... | .80 | .... | .... | .99 | .63 | .... | .89 | .94 | .89 | .94 | .... | .94 | .91 | .... | .92 |
| Below 25 | .... | .... | .... | $.73 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | $.73 | .... | .... | .... | .... |
| 25-25.9 | .75 | .80 | .73 | .75 | .82 | .... | .... | 1.01 | .65 | .... | .92 | .97 | .92 | .97 | .75 | .97 | .94 | .... | .95 |
| 26-26.9 | .78 | .82 | .75 | .77 | .84 | .... | .... | 1.03 | .67 | .... | .95 | 1.00 | .95 | 1.00 | .77 | 1.00 | .97 | .... | .98 |
| 27-27.9 | .81 | .84 | .77 | .79 | .86 | .... | .... | 1.05 | .69 | .... | .97 | 1.02 | .97 | 1.02 | .79 | 1.02 | .99 | .... | 1.00 |
| 28-28.9 | .84 | .86 | .79 | .81 | .88 | $.72 | $.67 | 1.07 | .71 | $.81 | .99 | 1.04 | .99 | 1.04 | .81 | 1.04 | 1.01 | $.61 | 1.02 |
| 29-29.9 | .87 | .88 | .81 | .83 | .90 | .74 | .69 | 1.09 | .73 | .83 | 1.01 | 1.06 | 1.01 | 1.06 | .83 | 1.06 | 1.03 | .63 | 1.04 |
| Below 30 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 30-30.9 | .90 | .90 | .83 | .85 | .92 | .76 | .71 | 1.11 | .75 | .85 | 1.03 | 1.08 | 1.03 | 1.08 | .85 | 1.08 | 1.05 | .65 | 1.06 |
| 31-31.9 | .92 | .92 | .85 | .87 | .94 | .78 | .73 | 1.13 | .77 | .87 | 1.05 | 1.10 | 1.05 | 1.10 | .87 | 1.10 | 1.07 | .67 | 1.08 |
| 32-32.9 | .94 | .94 | .87 | .89 | .96 | .80 | .75 | 1.15 | .79 | .89 | 1.07 | 1.12 | 1.07 | 1.12 | .89 | 1.12 | 1.09 | .69 | 1.10 |
| 33-33.9 | .96 | .96 | .89 | .91 | .98 | .82 | .77 | 1.17 | .81 | .91 | 1.09 | 1.14 | 1.09 | 1.14 | .91 | 1.14 | 1.11 | .71 | 1.12 |
| 34-34.9 | .98 | .98 | .91 | .93 | 1.00 | .84 | .79 | 1.19 | .83 | .93 | 1.11 | 1.16 | 1.11 | 1.16 | .93 | 1.16 | 1.13 | .73 | 1.14 |
| Below 35 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 35-35.9 | 1.00 | 1.00 | .93 | .95 | 1.02 | .86 | .81 | 1.21 | .85 | .95 | 1.13 | 1.18 | 1.13 | 1.18 | .95 | 1.18 | .... | .75 | .... |
| 36-36.9 | 1.02 | 1.02 | .95 | .97 | 1.04 | .88 | .83 | 1.23 | .87 | .97 | 1.15 | 1.20 | 1.15 | 1.20 | .97 | 1.20 | .... | .77 | .... |
| 37-37.9 | 1.04 | 1.04 | .97 | .99 | 1.06 | .90 | .85 | 1.25 | .89 | .99 | 1.17 | 1.22 | 1.17 | 1.22 | .99 | 1.22 | .... | .79 | .... |
| 38-38.9 | 1.06 | 1.06 | .99 | 1.01 | 1.08 | .92 | .87 | 1.27 | .91 | 1.01 | 1.19 | 1.24 | 1.19 | 1.24 | 1.01 | 1.24 | .... | .81 | .... |
| 39-39.9 | 1.08 | 1.08 | 1.01 | 1.03 | 1.10 | .94 | .89 | 1.29 | .93 | 1.03 | 1.21 | 1.26 | 1.21 | 1.26 | 1.03 | 1.26 | .... | .83 | .... |
| 40 and over | 1.10 | 1.10 | .... | 1.05 | 1.12 | .... | .... | .... | .95 | 1.05 | .... | .... | .... | 1.28 | 1.05 | 1.28 | .... | .85 | .... |
| 40-40.9 | .... | .... | 1.03 | .... | .... | .96 | .91 | 1.31 | .... | .... | 1.23 | 1.28 | 1.23 | .... | .... | .... | .... | .... | .... |
| 41-41.9 | .... | .... | 1.05 | .... | .... | .98 | .93 | 1.33 | .... | .... | 1.25 | 1.30 | 1.25 | .... | .... | .... | .... | .... | .... |
| 42-42.9 | .... | .... | 1.07 | .... | .... | 1.00 | .95 | 1.35 | .... | .... | 1.27 | 1.32 | 1.27 | .... | .... | .... | .... | .... | .... |
| 43-43.9 | .... | .... | 1.09 | .... | .... | 1.02 | .97 | 1.37 | .... | .... | 1.29 | 1.34 | 1.29 | .... | .... | .... | .... | .... | .... |
| 44-44.9 | .... | .... | 1.11 | .... | .... | 1.04 | .99 | 1.39 | .... | .... | 1.31 | 1.36 | 1.31 | .... | .... | .... | .... | .... | .... |
| 45 and over | .... | .... | 1.13 | .... | .... | 1.06 | 1.01 | 1.41 | .... | .... | 1.33 | 1.38 | 1.33 | .... | .... | .... | .... | .... | .... |

Column 1—Magnolia Petroleum Co., effective October 12, 1938. Shell Petroleum Corp., effective October 22, 1938.

Column 2—Standard Oil Co. of Indiana, effective October 11, 1938, below 29 degrees 86 cents, with 2-cent spread to 40 and over at $1.10. Same company on October 17 revised the schedule to start at below 21 degrees at 70 cents, with 2-cent spread to 40 and over at $1.10. Sinclair Prairie Oil Marketing Co. schedule started at below 25 degrees, 60 cents; 25-25.9, 80 cents with 2-cent differential up to $1.10 for 40 degrees and over, effective October 11, but was revised on October 14, starting at 21 gravity, 60 cents, with a 3-cent spread to 30-30.9 degrees at 90 cents, then a 2-cent spread to 40 degrees and over at $1.10. Gulf Oil Corp. schedule starts at below 25 degrees, 78 cents, with 2-cent differential up to $1.10 for 40 degrees and over, effective October 13. Shell Petroleum Corp. schedule same as that of Gulf, effective October 13 to October 21 (see Column 1). The Texas Co. schedule starts at 28-28.9 degrees, 86 cents, with top of $1.10 for 40 degrees and over. Pure Oil Co. same as Standard of Indiana's October 11 schedule, effective October 14.

Column 3—Humble Oil & Refining Co. in Central Texas, effective October 11. Magnolia Petroleum Co. schedule in North and Central Texas, same as the Humble, excepting that it starts at below 29 degrees at 79 cents, effective October 12. The Texas Co. schedule in North and Central Texas, same as Magnolia's except that it stops at 40 degrees and over at $1.03, effective October 12. Gulf Refining Co. same as the Texas Co., effective October 13. Sinclair Prairie Oil Marketing Co., in Mexia and North Central Texas, below 29 degrees, 76 cents, with 2 cents added for each degree up to and including 40 and over at $1, effective October 11. Stanolind Oil Purchasing Co. schedule started at below 29 degrees at 79 cents with a top of $1.03 for 40 degrees and over, effective October 11, but was revised on October 17 to read below 21 degrees, 60, cents, with a 2-cent spread to 40 degrees and over at $1.

Column 4—Standard Oil Co. of Louisiana, effective October 5, 1938. Met by Gulf Refining Co. October 13; met by Texas Co. October 12.

Column 5—Humble Oil & Refining Co., October 11, 1938.

Column 6—Humble Oil & Refining Co., effective October 11, 1938. Met by Sinclair Prairie Oil Marketing Co., stopping at 40 degrees at 96 cents, October 11. Texas Co. quotes "Panhandle sweet crude," beginning with 34-34.9 degrees, at 84 cents, with 2-cent spread to 40 and over at 96 cents, and "Panhandle sour crude," 79 cents for 34-34.9 degrees, with a top of 91 cents for 40 degrees and over, effective October 12. Magnolia Petroleum Co. met Humble prices throughout, effective October 12. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29 degrees, 72 cents with a 2-cent spread, and a top price of 96 cents for 40 degrees and above, and "Panhandle sour crude" below 29 degrees, 67 cents, with a top of 91 cents for 40 degrees and above effective October 13. Phillips Petroleum Co. schedule for sweet crude in the Gray, Carson and Hutchinson counties, starts at below 29 degrees, 64 cents, with a spread of 2 cents up to 88 cents for 40 degrees and over, effective October 12.

Column 7—Humble Oil & Refining Co., effective October 11, 1938. Met by Sinclair Prairie Oil Marketing Co., stopping at 40 degrees and over at 91 cents. Texas Co. quotes "Panhandle sweet crude" at 34-34.9 degrees, 84 cents, with a top of 96 cents for 40 gravity, and "Panhandle sour crude" at 34-34.9 degrees, 79 cents, with a top of 91 cents for 40 degrees and over, effective October 12. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29 degrees, 72 cents, with a top of 96 cents for 40 degrees and over and "Panhandle sour crude" at below 29 degrees, 67 cents, with a top of 91 cents for 40 degrees and above, effective October 13. Phillips Petroleum Co. schedule for sour crude in Carson, Moore and Hutchinson counties, starts at below 29 degrees at 59 cents, with 2-cent spread up to 83 cents for 40 degrees and over, effective October 12.

Column 8—Humble Oil & Refining Co., effective October 11, 1938. Magnolia Petroleum Co., in Tomball, effective October 12.

Column 9—Humble Oil & Refining Co., effective October 11, 1938. The Texas Co. schedule starts below 26 degrees, 65 cents, and ends at 36 degrees and over at 87 cents, effective October 12. Gulf Refining Co. starts at below 26 degrees at 65 cents and ends at 40 degrees and over at 95 cents, effective October 13. Magnolia Petroleum Co. schedule starts below 25 degrees, 63 cents, and ends at 40 degrees and above at 95 cents, effective October 12. Sinclair Prairie Oil Marketing Co. schedule same as that of Magnolia, effective October 11. Stanolind Oil Purchasing Co. schedule same as that of Humble, effective October 11. Stanolind Oil & Gas Co. (Winkler County) starts at below 26 degrees, 65 cents, with a 2-cent spread, and a top of 95 cents for 40 degrees and above, effective October 11.

Column 10—Continental Oil Co., effective October 11, 1938.

Column 11—Humble Oil & Refining Co., effective October 11, 1938. Met by Gulf Refining Co. in Anahuac, but stopping at 40 and above at $1.23, effective October 12.

Column 12—Humble Oil & Refining Co., effective October 11, 1938. Met by the Texas Co. starting at below 21 degrees at 81 cents and stopping at 28 and above at $1.04.

Column 13—Humble Oil & Refining Co. in Mirando, effective October 11, 1938. The Texas Co. schedule in Mirando and Duval starts at below 21 degrees, 77 cents, with 3-cent spread to 28-28.9 degrees at 99 cents.

Column 14—Posted by Humble Oil & Refining Co., effective October 11, 1938. The Texas Co. schedule in coastal Texas and Louisiana, starts at below 21 degrees, 82 cents, with 3-cent differential up to 26-26.9 at $1 and then a 2-cent differential to top of $1.16 for 34 degrees and above, effective October 12. Gulf Refining Co. schedule on Louisiana Gulf Coast starts at below 18 gravity, 76 cents, with 2-cent spread to 20-20.9 degrees at 82 cents, then a 3-cent spread to 26-26.9 degrees at $1, then a 2-cent spread to a top of $1.16 for 34 degrees and over, effective October 12. Sun Oil Co. met Humble prices October 13, stopping at 34 degrees and over at $1.16.

Column 15—Magnolia Petroleum Co., effective October 12, 1938.

Column 16—Standard Oil & Gas Co. in West Beaumont, effective October 11, 1938, and Magnolia Petroleum Co. in Beaumont field, effective October 12.

Column 17—Magnolia Petroleum Co., effective October 12, 1938.

Column 18—Continental Oil Co., effective October 11, 1938.

Column 19—Shell Petroleum Corp., October 11, 1938.

# Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

## New York Stock Exchange

| 1938 High | 1938 Low | Week ending Oct. 22 High | Low | Close | Stocks— | Total shares outstanding | Par value | Latest dividend | Payable or last paid | Com. sh. earn. 1937 | 1936 | Dividends paid in 1937 | 1937 High | 1937 Low | 1936 High | 1936 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78 | 55 | 70 | 64⅞ | 70 | Amerada Corp. | 788,675 | N.P. | 50cQ | 7-30-38 | $3.04 | $2.52 | $.200 | 114⅞ | 51½ | 125½ | 75 |
| 27⅜ | 17¾ | 24¼ | 23 | 23¾ | Atlantic Refining | 2,663,999 | $25 | 25cQ | 9-15-38 | 3.51 | 2.59 | 1.00 | 37 | 18 | 35¼ | 26⅝ |
| 23⅜ | 12⅛ | 23¼ | 20¾ | 23¼ | Barber Asphalt Co. | 390,223 | $10 | 75c | 12-16-37 | 1.91 | 1.14 | 1.00 | 43⅜ | 10⅛ | 38½ | 21 |
| 21⅝ | 10⅛ | 18 | 16⅛ | 17¾ | Barnsdall Oil Co. | 2,250,344 | $5 | 25cQ | 11-1-38 | 0.85 | 1.01 | 1.00 | 35¼ | 10 | 28¼ | 14⅛ |
| 10¾ | 7 | 9½ | 8½ | 9⅛ | Consolidated Oil Corp. | 13,915,167 | N.P. | 20cQ | 11-15-38 | 1.48 | 1.18 | .90 | 17⅞ | 7 | 17¼ | 11½ |
| 35⅜ | 21¼ | 30¼ | 26¼ | 30 | Continental Oil of Delaware | 4,682,583 | $5 | 25cQ | 9-30-38 | 2.98 | 2.05 | 1.50 | 49 | 24 | 44⅞ | 28½ |
| 9¾ | 5 | 8⅞ | 7⅛ | 8⅜ | Houston Oil (new) | 1,098,618 | $25 | .... | 10-17-30 | 0.94 | —0.03 | .... | 17⅝ | 4¾ | 13⅞ | 6⅝ |
| 22⅝ | 12¼ | 17⅝ | 15⅝ | 17⅝ | Mid-Continent Petroleum | 1,857,912 | $10 | 25c | 6-1-38 | 2.86 | 2.57 | 1.50 | 35⅝ | 14 | 30⅞ | 17¼ |
| 17¾ | 10⅝ | 14½ | 13¼ | 14⅛ | Mission Corporation | 1,382,945 | $10 | $1 | 6-29-38 | 1.31 | 0.48 | 1.25 | 34 | 15 | 29⅞ | 16¾ |
| 23 | 12½ | 17⅞ | 15¾ | 17½ | National Supply | 1,155,170 | $10 | $2 pf.‡ | 12-22-37 | 4.90 | 2.02 | (‡) | 41⅜ | 17⅝ | 75½ | 19⅞ |
| 14⅞ | 8⅞ | 11 | 9⅞ | 10⅞ | Ohio Oil Co. | 6,563,377 | N.P. | 50c | 12-15-37 | 1.30 | 0.70 | 1.00 | 22⅞ | 8 | 18 | 12⅛ |
| 15⅞ | 10¼ | 13 | 11⅞ | 13 | Pacific Western Oil | 1,000,000 | N.P. | 75c | 12-15-37 | 1.39 | 1.58 | .75 | 29⅝ | 11⅜ | 23½ | 11⅜ |
| 9¼ | 6½ | 7½ | 6½ | 7¼ | Pan American Pet. & Trans. | 4,702,945 | $5 | $1* | 12-21-37 | 1.18 | 0.52 | 1.00 | 17⅛ | 7 | 20⅝ | 12¼ |
| 44⅜ | 27¼ | 39⅞ | 37 | 39⅞ | Phillips Petroleum | 4,449,052 | N.P. | 50cQ | 9-1-38 | 5.42 | 4.02 | 2.75 | 64 | 30⅛ | 52⅝ | 33⅛ |
| 25⅜ | 15 | 22⅛ | 20⅜ | 22 | Plymouth Oil Co. | 1,029,800 | $5 | 35cQ | 6-30-38 | 2.85 | 1.65 | 1.65 | 29⅞ | 13 | 27⅜ | 11⅞ |
| 13½ | 8¼ | 11⅜ | 9½ | 11⅜ | Pure Oil Co. | 3,285,120 | N.P. | 25c | 12-1-37 | 2.15 | 1.63 | .25 | 24⅝ | 8⅜ | 27⅝ | 16 |
| 8⅞ | 5 | 7⅜ | 6⅞ | 7⅜ | Richfield Oil Corp. | 3,896,638 | N.P. | 25c | 12-24-37 | 0.35 | .... | .25 | 6½ | 4⅛ | .. | .. |
| 27½ | 15½ | 23 | 20 | 22½ | Seaboard Oil of Delaware | 1,244,383 | N.P. | 25cQ | 9-15-38 | 1.97 | 2.00 | 1.00 | 54⅛ | 16 | 44 | 30½ |
| 18⅜ | 10 | 15⅝ | 14⅛ | 15⅜ | Shell Union Oil | 13,070,625 | N.P. | 35c | 7-15-38 | 1.44 | 1.57 | 1.00 | 34⅜ | 14⅞ | 28¼ | 14⅜ |
| 34⅜ | 18½ | 26⅝ | 23¼ | 26½ | Skelly Oil | 1,003,949 | $15 | 50c | 6-25-38 | 6.07 | 4.42 | 1.50 | 60⅝ | 26½ | 47⅜ | 19½ |
| 16⅜ | 10⅜ | 14⅛ | 13 | 13⅞ | Socony-Vacuum | 31,151,071 | $15 | 25c | 9-15-38 | 1.82 | 1.38 | .80 | 23¼ | 13 | 17½ | 12½ |
| 34⅞ | 25⅛ | 30¼ | 28½ | 30¼ | Standard Oil of California | 13,014,754 | N.P. | 35cQ† | 9-15-38 | 3.17 | 1.79 | 2.00 | 50 | 27⅛ | 47⅝ | 35 |
| 35½ | 24⅝ | 30⅛ | 28⅝ | 29⅜ | Standard Oil (Indiana) | 15,267,030 | $25 | 25cQ | 9-15-38 | 3.66 | 3.09 | 2.30 | 50 | 26½ | 48½ | 32⅜ |
| 45 | 32½ | 45 | 45 | 45 | Standard Oil of Kansas | 112,837 | $10 | $5 | 12-20-37 | 6.93 | 1.91 | 5.00 | 43 | 30⅝ | 31 | 25 |
| 58⅜ | 39¾ | 53⅝ | 52⅛ | 53¼ | Standard Oil of New Jersey | 26,224,767 | $25 | $1SA† | 6-15-38 | 5.64 | 3.73 | 2.50 | 76 | 42 | 70⅝ | 51⅛ |
| 59 | 45 | 52 | 51¾ | 52 | Sun Oil | 2,316,484 | N.P. | 25cQ | 9-15-38 | 3.86 | 3.25 | $1 & 8% stk. | 77½ | 44½ | 91 | 70 |
| 4¼ | 1¾ | 3⅝ | 3 | 3½ | Superior Oil Corp. | 1,388,079 | $1 | .... | ..... | 0.32 | 0.14 | .... | 7¾ | 1½ | 6¾ | 3 |
| 49⅝ | 32⅝ | 43¾ | 40⅝ | 43½ | Texas Corp. | 10,875,006 | $25 | 50cQ | 10-1-38 | 5.02 | 4.10 | 2.25 | 65½ | 34¾ | 55¼ | 28⅞ |
| 5¼ | 2⅝ | 4¾ | 4 | 4½ | Texas Gulf Producing Co. | 888,138 | N.P. | 10c | 12-23-37 | 0.68 | 0.93 | .10 | 9⅝ | 2 | 8⅞ | 4⅜ |
| 12½ | 7 | 10⅝ | 9½ | 10 | Texas Pacific Coal & Oil | 888,237 | $10 | 10c | 9-1-38 | 1.11 | 0.72 | .40 | 16⅝ | 5⅜ | 15¼ | 7½ |
| 15⅜ | 10⅛ | 13⅜ | 12½ | 13⅜ | Tide Water Associated | 6,369,175 | $10 | 25cQ | 9-1-38 | 2.08 | 1.03 | 1.20 | 21⅝ | 13⅛ | 21⅜ | 14⅜ |
| 22½ | 17⅛ | 20½ | 20 | 20¼ | Union Oil of California | 4,666,270 | $25 | 30cQ | 8-10-38 | 2.58 | 1.40 | 1.40 | 28¼ | 17½ | 28½ | 20⅜ |
| 23½ | 20 | 23 | 22½ | 23 | Union Tank Car Co. | 1,200,000 | N.P. | 30cQ | 9-1-38 | 1.70 | 1.76 | 1.60 | 31½ | 22 | 31⅝ | 22⅝ |
| 3½ | 1⅝ | 3 | 2½ | 2⅝ | Wilcox Oil & Gas | 506,522 | $5 | .... | 5-10-28 | 0.24 | —0.06 | .... | 6¼ | 1⅜ | 5¼ | 2⅜ |

*Payable in 3½% notes. †Includes extras. ‡One-tenth share $2 preferred stock.

## New York Curb Exchange

| 1938 High | 1938 Low | Week ending Oct. 22 High | Low | Close | Stocks— | Total shares outstanding | Par value | Latest dividend | Payable or last paid | Com. sh. earn. 1937 | 1936 | Dividends paid in 1937 | 1937 High | 1937 Low | 1936 High | 1936 Low |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11⅝ | 5 | 10½ | 9⅜ | 10¼ | American Republic Corp. | 1,308,049 | $10 | 10c | 7-11-38 | $0.27 | $0.28 | $0.40 | 10 | 6⅝ | .. | .. |
| 10¼ | 4⅞ | 7 | 6⅜ | 6⅞ | Bridgeport Machine Co. | 260,000 | N.P. | $1.25 | 12-30-37 | 1.90 | 1.26 | 2.00§ | 21⅜ | 7 | 21 | 13¼ |
| 39 | 24¼ | 26 | 25 | 26 | Buckeye Pipe Line Co. | 200,000 | $50 | 50c | 12-15-38 | 4.02 | 4.40 | 3.75 | 51½ | 36 | 50 | 39⅜ |
| 114⅜ | 97 | 114½ | 114 | 114½ | Chesebrough Mfg. Co. | 120,000 | $25 | $1.50Q† | 9-27-38 | 6.73 | 7.46 | 7.00 | 12 | 95½ | 124⅜ | 105 |
| 11 | 5⅛ | 9⅜ | 8½ | 9 | Cities Service (new) | 3,714,317 | $10 | .... | 6-1-32 | 1.02 | 0.13 | .... | 5⅜ | 1½ | 7⅜ | 3 |
| 2⅜ | ⅞ | 1¼ | 1 | 1⅛ | Cosden Petroleum | 462,551 | $1 | .... | ..... | 0.19 | .... | .... | 5½ | 1½ | 4½ | 1½ |
| 27½ | 17½ | 21¼ | 20 | 20⅞ | Creole Petroleum | 6,975,383 | $5 | 50cSA† | 6-10-38 | 1.61 | 1.23 | 1.00 | 38⅜ | 20¼ | 39 | 19⅞ |
| 10¼ | 5½ | 8½ | 8⅛ | 8½ | Darby Petroleum | 351,390 | $5 | 25cSA | 1-15-39 | 1.36 | 1.26 | .50 | 18⅝ | 6½ | 18⅛ | 9 |
| 3½ | 1⅜ | 2¼ | 2 | 2¼ | Derby Oil & Refining | 263,162 | N.P. | .... | ..... | 1.34 | 0.66 | .... | 8⅜ | 2¼ | 6⅜ | 1⅞ |
| 31 | 19½ | .. | .. | .. | Eureka Pipe Line | 50,000 | $50 | 50c | 8-1-38 | —0.12 | —0.62 | 4.00 | 47½ | 24½ | 47½ | 38½ |
| 46⅞ | 33 | 41 | 38¼ | 40 | Gulf Oil Corp. | 9,076,202 | $25 | 25cQ | 10-1-38 | 3.51 | 2.90 | 1.00 | 63½ | 33 | 59 | 36 |
| 72⅝ | 56 | 65½ | 62¾ | 63¾ | Humble Oil & Refining | 8,987,840 | N.P. | 62½c | 10-1-38 | 5.22 | 3.80 | 2.00 | 87 | 54⅞ | 80 | 57 |
| 19½ | 14⅛ | 17⅞ | 17⅛ | 17⅜ | Imperial Oil of Canada | 26,965,078 | N.P. | 62½cSA†‡ | 6-1-38 | 0.98 | 0.95 | 1.25 | 24¼ | 14½ | 24½ | 19¾ |
| 9⅜ | 6⅝ | 7¾ | 7 | 7½ | Indiana Pipe Line | 300,000 | $10 | 30c | 5-14-38 | 1.03 | 1.00 | .80 | 15 | 5⅞ | 9¾ | 5½ |
| 31¼ | 21 | 26⅞ | 26⅛ | 26½ | International Petroleum | 14,324,088 | N.P. | $1.25†‡ | 6-1-38 | .... | 1.81 | 2.50 | 39½ | 23½ | 39⅝ | 32⅝ |
| 5 | 2¾ | 3¾ | 3⅜ | 3⅜ | Kirby Petroleum Co. | 500,000 | $1 | 10c | 4-15-38 | 0.17 | 0.20 | .... | 8¾ | 2⅜ | 5⅜ | 2⅝ |
| 25⅛ | 15⅝ | 22⅛ | 20½ | 22 | Lion Oil Refining | 434,820 | N.P. | 25cQ | 10-10-38 | 2.17 | 1.43 | 1.50 | 34 | 12½ | 17¾ | 7⅝ |
| 10⅜ | 6⅝ | 10⅜ | 9⅞ | 10 | Lone Star Gas | 5,553,747 | N.P. | 20c | 8-20-38 | 1.14 | 1.02 | .60 | 14¼ | 5¼ | 14¼ | 9⅞ |
| 9⅝ | 6½ | 7⅝ | 6⅞ | 7¼ | Louisiana Land & Exp. | 2,977,449 | N.P. | 10cQ | 9-15-38 | 0.58 | 0.64 | .50 | 15¼ | 6⅜ | 15⅝ | 9⅞ |
| 9¼ | 6⅜ | 9½ | 8¾ | 9½ | Midwest Oil Co. | 998,444 | $10 | 50c | 6-15-38 | 1.14 | 0.95 | 1.00 | 14⅝ | 6¼ | .. | .. |
| 5¾ | 4½ | 5¾ | 5⅜ | 5¾ | Mountain Producers | 1,593,584 | $10 | 30cSA | 6-15-38 | 0.76 | 0.62 | .60 | 7⅞ | 4⅛ | 8⅜ | 5 |
| 14⅝ | 11½ | 14 | 13½ | 14 | National Fuel Gas | 3,810,183 | N.P. | 25cQ | 10-15-38 | 0.96 | 1.19 | 1.00 | 19½ | 12 | 23 | 17⅝ |
| 9¼ | 6⅝ | 7½ | 7⅛ | 7⅛ | National Transit | 509,000 | $12.50 | 35cSA | 6-15-38 | 1.19 | 0.79 | 1.00 | 12½ | 7¼ | 15¾ | 9¼ |
| 2⅝ | 1½ | 2 | 1⅞ | 2 | New Mexico and Arizona | 1,000,000 | $1 | 1c | 12-1-38 | 0.02 | 0.02 | .... | 5 | 1⅛ | 6⅝ | 1⅝ |
| 4½ | 4 | .. | .. | .. | New York Transit | 100,000 | $5 | 15c | 10-15-38 | 0.49 | 0.34 | 1.00 | 5⅜ | 3⅞ | 6¼ | 4¼ |
| 6 | 4 | 5½ | 5 | 5 | Northern Pipe Line | 120,000 | $10 | 15c | 12-1-38 | 0.78 | 0.66 | 1.00 | 12¾ | 5¾ | 9¾ | 4⅞ |
| 7⅜ | 3½ | 5 | 4⅝ | 4⅞ | Pantepec Oil | 2,441,142 | $1 | .... | ..... | .... | 0.05 | .... | 9⅝ | 2⅜ | 10½ | 3¼ |
| 3½ | 1⅝ | 2¼ | 2⅛ | 2⅜ | Root Petroleum Co. | 336,045 | $1 | 25c | 2-1-37 | —0.17 | 0.45 | .25 | 12¾ | 2 | 19¼ | 4½ |
| 4 | 2⅛ | 3 | 2⅞ | 2⅞ | Ryan Consolidated | 296,931 | N.P. | .... | ..... | 0.46 | .... | .... | 6½ | 2¼ | 4⅜ | 1⅞ |
| 5⅜ | 3⅜ | 4 | 4 | 4 | Southern Pipe Line | 100,000 | $10 | 15cSA | 9-1-38 | 0.85 | 0.41 | .45 | 7¼ | 3⅜ | 7⅞ | 3¼ |
| 39 | 28⅜ | 32½ | 31⅞ | 32½ | South Penn Oil | 1,000,000 | $25 | 37½cQ | 9-30-38 | 4.64 | 3.59 | 3.65 | 56 | 35 | 44 | 32½ |
| 22¼ | 19 | .. | .. | .. | Southwest Penna. Pipe Lines | 35,000 | $50 | 50cQ | 10-1-38 | 0.95 | 0.97 | 2.00 | 42 | 20 | 60 | 44 |
| 18⅜ | 15 | 17⅞ | 17½ | 17⅝ | Standard Oil of Kentucky | 2,604,790 | $10 | 25c | 9-13-38 | 1.60 | 1.46 | 1.50 | 21⅛ | 14¾ | 23⅜ | 17⅛ |
| 8⅜ | 6⅛ | 7⅞ | 7⅞ | 7⅞ | Standard Oil of Nebraska | 166,403 | $25 | 25c | 3-29-37 | —0.58 | 0.42 | .25 | 13¾ | 8 | 14⅝ | 11 |
| 22⅜ | 16¼ | 22¼ | 21⅜ | 21¾ | Standard Oil of Ohio | 753,740 | $25 | 25c | 9-15-38 | 3.67 | 4.77 | 1.50 | 45 | 16 | 40 | 21¾ |
| 3¼ | 2⅛ | 2½ | 2¼ | 2½ | Sunray Oil | 2,006,176 | $1 | 10c | 12-24-37 | 0.42 | 0.26 | .25 | 4⅞ | 2 | 5 | 2⅝ |
| 5¼ | 3½ | 4⅝ | 4½ | 4⅝ | Texon Oil & Land | 936,024 | $2 | 15cQ | 9-30-38 | 0.51 | 0.36 | .45 | 7⅝ | 2 | 9⅜ | 5⅜ |
| 7⅝ | 4¼ | 5 | 4⅜ | 4⅞ | Transwestern Oil Co. | 750,000 | $10 | .... | ..... | 0.48 | 0.06 | .... | 13⅞ | 4⅝ | .. | .. |
| 5¼ | 2⅜ | 4⅜ | 3⅜ | 3⅞ | United Gas Corp. | 7,818,959 | $1 | .... | ..... | 0.25 | 0.20 | .... | 13⅞ | 3 | 10¾ | 4 |

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

# New or Improved Equipment

## Highest Degree of Accuracy in Counterweight Effect Gained

The success of a back-crank pumping installation often depends on the ease with which counterbalancing can be maintained when some of the

wells are hooked off. National concentric disc cranks and counterweights, recently placed on the market by the National Supply Co., Toledo, Ohio, were designed especially for such service. The counterweights travel around an endless circular track on the crank giving the maximum in accuracy of counterweight effect and degree of lag and lead. Moreover, adjustment is made by the power of the prime mover. There is no adding to or subtracting of weights, nor can they slide off. One man can do the work quickly and easily. This offers considerable assurance that desirable changes in counterweighting will be followed closely.

The concentric disc crank is made with a split hub of special design, which is tightened over the key on the reduction gear by a large bolt. Three keyways are provided in the crank, spaced 90 degrees apart, so that proper crank position can be obtained irrespective of direction of wells from the gear. Wristpin holes are tapered to insure tightness of the pin, and keyseats prevent the pin from turning. The nut is held in place by a locking device. The counterweights are identical with those used on National eccentric disc cranks. Any number of counterweights from one to three can be used on each crank. In addition each size of crank has several optional sizes of counterweights.

While it is seldom that more than one concentric crank is required, both sides of the reduction gear on a four-well hookup can be so equipped, if desired, to double the counterweight effect. This wide range of results makes it easy to take care of any condition that might arise during the long-time operation of wells by a back-cranking system.

## Bulletins, Booklets and Other Literature for the Trade

Walter Kidde & Co., 60 West Street, Bloomfield, N. J., has prepared a bulletin dealing with Kidde water and antifreeze portable fire-extinguishers. The bulletin describes the mechanism and operation of these extinguishers, which make use of a cartridge of compressed carbon dioxide gas to expel the water or antifreeze solution.

Among articles of interest to the oil industry in the current number of the Neoprene Notebook, published by Rubber Chemicals Division of E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del., is one which points out how the degree of saturation of petroleum hydrocarbons is an important factor in oil resistance.

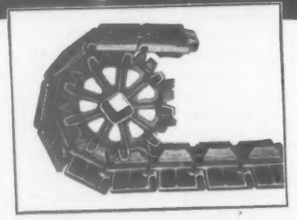
Including for the first time a table on the effect of load and speed on tire service, with percentages of recommended maximum loads at maximum sustained speeds to obtain normal tire service, the B. F. Goodrich Co., Akron, Ohio, has just published an operators' handbook on truck, bus and farm and industrial tractor tires. Copies can be obtained upon request.

Republic Steel Corp. has issued a 10-page pamphlet, "Facts About Republic Standard Pipe," containing bundling tables, sizes and weights, identification and corrosion information on Republic Standard pipe, Republic copper-bearing steel pipe and Toncan copper molybdenum iron pipe. It can be obtained by writing the company at Cleveland, Ohio, asking for bulletin Adv. 316.

Graphoid surface is the latest subject discussed in the technical series of Acheson Colloids Corp., Port Huron, Mich. The theory and application of nonoily yet unctuous graphite surface are discussed in Bulletin 220.4. Folder 626, also available, covers the treatment of screw threads with colloidal graphite.

## Clogging Eliminated by Design of Buckeye Crawler Tread

The new crawler tread used on Buckeye Clipper convertible excavators, built by the Buckeye Traction Ditcher Co., Findlay, Ohio, is a patented



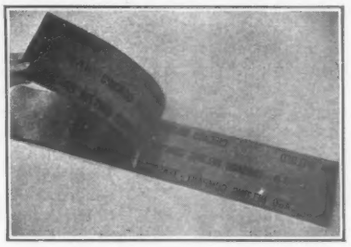
improvement with several distinct advantages. One is the freedom from clogging. As shown in the illustration, there are no pockets in the tread where loose materials can lodge. The single lug in the center and the wide roller track on each side of the lug give a nonclogging surface.

Since the bearing surface on the top of the lug is cast to a radius similar to that of the sprocket-rim, there is little wear on the sprocket-rim, where the load is carried. This bearing surface will not wear out of pitch and it keeps the treads in a true pitch circle.

Another advantage is the way the treads fold around the tooth on the sprocket, with no rubbing of sprocket-teeth in or out of engagement.

## Belt Is Branded Between Plies for Permanent Identification

Chicago Belting Co., 128 North Green Street, Chicago, now brands all its double belts with what it asserts is the first permanent branding ever devised for double leather belts. When a leather belt gives outstanding service the plant user



wants another belt "just like the old one." For nothing is more convincing to a machine operator than the actual performance of a product on his own machines in his own shop.

For some 80 years leather belts have been branded with steel dies hammered into the outside of the belt. Every leather-belt maker had his own brand marks, which told not only the name of the belt-maker but also the grade of the leather in the belt. These marks disappear, sometimes in six months, sometimes not for years.

The average leather belt made by the Chicago Belting Co. is said to travel over 500,000 miles in ordinary service. Thousands of leather belts travel over 1,000,000 miles. Such enormous mileage wears the surface of the belts and it is a distinct loss to the user if he cannot identify and re-order those belts that give superlative service. When the brand mark has become worn the belting company that makes the good belt loses an order and the plant that wanted "another good belt" is forced to experiment instead of duplicating the satisfactory belt.

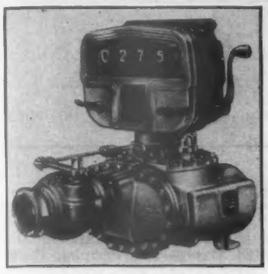
So the Chicago Belting Co. now brands all its double leather belts on the inside of the belt, between the two plies, with a printing that is legible for the life of the belt, even if it is 50 years At any time these belts can be opened up and the name of the maker, with the month and year it was manufactured clearly shown, regardless of the wear on the surface of the belt, of lubricating oil or of dirt.

## Langley Manufacturers' Agent

W. C. Langley plans to return to Trinidad this month to represent American Iron & Machine Works Co., Byron Jackson Co., Elliott Core Drilling Co., Lane-Wells Co., and Security Engineering Co., Inc., in Trinidad, Venezuela, and Colombia. Mr. Langley for the past 11 years has been connected with the Standard Oil Co. of Venezuela, on standardization and materials work, both in Trinidad and Venezuela. Before that he was engaged for three years in field work in Southwest Africa for the Sinclair interests. After November 1, 1938, Mr. Langley's headquarters will be in Port-of-Spain, Trinidad.

## Oil Delivery Receipt Printer Is Shock-Proof and Convenient

A departure in fuel oil delivery receipt printers is the Brodimatic printer, a shock-proof roller-type printer. It does not slow down meter delivery speeds because the printer is not driven by the meter. A new cam-segmentator mechanism causes the meter simply to rotate and position several cams, and these cams engage with the printer at the time the truck-driver pulls the operating lever. All operating and type-setting power comes from the operating lever.



Compactness is a feature. Addition of the printer to the direct-reading Brodimatic counter adds only 1¾ inches to the depth and about 1 inch to its height. Installation is quick, since removal and replacement of eight screws is all that is required. Enforced sequence of operations is the result of a steel pin locking the receipt into the printer, and it cannot be moved or removed until the final delivery total is imprinted upon it. The total printed on the receipt agrees exactly with the consumer counter on the meter and thus is less confusing to the customer. Several commodities can be imprinted on the same receipt. Details and bulletins may be obtained from Ralph N. Brodie Ca., 962 Sixty-first Street, Oakland, Calif.

## Special-Duty Pump Installed on Tractor for Fire Protection

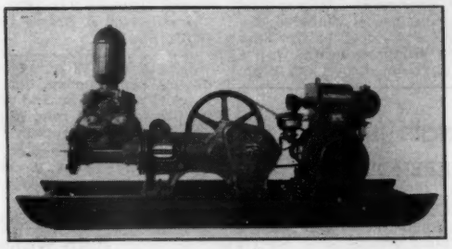
Auxiliary fire protection for refineries, stations and storage warehouses is afforded by a new special-duty fire-pump installed as part of the "Clarktor-6" industrial tractor. The centrifugal-type pump, meeting all test requirements of the National Board of Fire Underwriters, can handle any kind of water, regardless of dirt, and is therefore effective not only when drawing from hydrants, but also when the source of supply is a pond, creek, cistern or reservoir.

In practice, the high-pressure small nozzle creates a fine mist at the end of the stream of water, thus quenching the blaze. A floating flexible drive between motor and pump is provided by a patented power take-off. An automatic primer primes the pump and keeps it primed by means of a vacuum from the motor intake manifold. When taking supply through a 4-inch suction opening from a 30-pound hydrant, the pump will deliver 400 gallons per minute at 120 pounds pressure, with the motor running 1,800 r.p.m., which is its normal controlled speed when operating the tractor. Pump capacity and speed may be increased by adjusting the motor governor. The tractor power plant consists of a 46-horsepower 6-cylinder engine, equipped with air-cleaner and renewable cartridge-type oil-filter.

The pump is installed on the front end of any "Clarktor-6" Tructractor behind the bumper plate. The manufacturer, Clark Tructractor, Battle Creek, Mich., points out that the outfit is useful in flushing out large areas of concrete driveways, floors or docks., etc.

## Oil-Field Pumping Unit Is Built to Handle Heavy-Duty Load

The new Wisconsin-Goulds pumping unit was designed and is fabricated by Harley Sales Co., of Tulsa, oil-field distributor for Wisconsin Motor Corp. The unit is powered by a single-cylinder, four-cycle Wisconsin air-cooled engine whose large drop-forged crankshaft rotates in adjustable Timken roller bearings. The exhaust valves are made of silchrome steel and the inlet valves of chrome-nickel steel, both of which seat in inserts that are pressed into the cylinder wall. The engine is designed in every detail for industrial applications and for continuous heavy-duty loads. Being air-cooled and factory-tested at 140° F., severe and sudden changes of weather, either frigid or torrid, are said to have little effect on its operation. The engine is automatically lubricated and does not require oil or grease cups.



The engine is connected through B-section ropes to a Goulds double-acting, simplex, reciprocating, horizontal, piston-type pump. The cylinder carries a removable liner, two separate removable heads, large Micarta (not affected by petroleum or its products) valve discs and grid seats. The piston-rod, made of stainless steel, is equipped with a concave fluid-deflector, which prevents gland seepage from entering the pump gear-case. The main shaft in power rotates in ball bearings, minimizing friction to such a degree that a clutch is not necessary on the engine in starting actuation.

The units are built in four sizes ranging from 2½ by 3-inch to 5 by 5-inch and designed for 100 pounds pressure and 22 feet lift. The capacities range from 15 to 72 bbls. per hour. The 4 by 5-inch pump, having a capacity of 60 bbls. per hour, is particularly applicable for circulating and picking up oil and tank bottoms, although all of the pumps can be used for both oil and water.

## Jenkins Develops New Line of Corrosion-Resisting Valves

Jenkins Brothers, 80 White Street, New York, is introducing what is described as a "most advanced line of corrosion-resisting stainless steel valves." By "corrosion-resisting stainless steel," is commonly meant some combination of chromium and nickel with additions of silicon, molybdenum, copper, columbium, titanium, etc., the rest being iron. The expression "18-8," for example, refers to an 18 per cent chromium and 8 per cent nickel content.

These new Jenkins valves are regularly made of Cooper 18-8 S and Cooper 18-8 SMO, each having a carbon content limited to a maximum of one-tenth of 1 per cent. Both are highly resistant to corrosion, but Cooper 18-8 SMO is used under most severe conditions and is particularly adapted to sulfite pulp mills. According to Jenkins Brothers these two alloys will take care of almost 90 per cent of all corrosion-resisting requirements. In cases where neither of these valves can be recommended, valves of other alloys will be considered on special order.

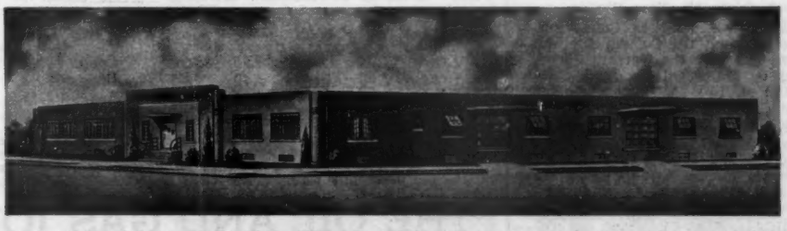
They are available in seven different styles: Solid wedge or double-disc gate valves, union bonnet or bolted bonnet regrinding globe or angle valves, and bolted bonnet Y valve, all either screwed or flanged, in sizes one-half inch to 3-inch.

## O'Connor Elected Dresser Director

J. B. O'Connor, vice president and general sales manager of Clark Brothers Co., Olean, N. Y., has been elected to the board of directors of S. R. Dresser Manufacturing Co., Bradford, Pa. Mr. O'Connor has been associated with Clark Brothers Co. since 1927, when he entered the organization as a sales representative, later advancing to the position he now holds. Clark Brothers Co. is well known in the oil industry as a manufacturer of gas engines and compressors. S. R. Dresser Manufacturing Co., the parent organization, makes Dresser pipe couplings and pipe-line repair devices.

## WELL EQUIPMENT MANUFACTURING CO. IN NEW HOME

The new home of Well Equipment Manufacturing Co., at 2023 Semmes Street, Houston, Tex., besides housing the executive and sales offices, includes a modern manufacturing plant where Weco wing unions, oil-savers, stuffing-boxes, boiler gauge-cocks, valve speed-handles, tubing-discs, tubing-disc breakers, universal or CC clamps, and service-saddles and drop-side snatch-blocks are turned out. The building has 10,000 square feet of floor space and is served by spur track.



# CLASSIFIED ADVERTISING

## Patent Attorneys

**JACK A. SCHLEY**
**PATENT LAWYER**
Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

**PATENTS — TRADE MARKS**
*All cases submitted given personal attention.*
Form "Evidence of Conception" with instructions for use and "Schedule of Government and Attorneys' Fees—FREE
**LANCASTER, ALLWINE & ROMMEL**
Patent Law Offices
**418 Bowen Bldg. Washington, D. C.**

## Leases and Drilling Blocks

**SECURITY ABSTRACT COMPANY**
El Dorado, Union County, Arkansas, Magnolia, Columbia County, Arkansas. Fee, Lease and Mineral ownership on short notice. Ownership maps.

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up. Owners—Address Attorney, Box 1122, Little Rock, Ark.

DRILLING deals wanted 50,000 acres Southern Illinois in and around production area. Elmer Gant, Anna, Illinois.

FOR SALE—Blocks of 100 to 10,000 acres 5 to 10 year term oil and gas leases located on structures near oil and pas producing wells. Two structures are geologically approved. Depth of drilling 450 to 900 feet. W. P. Harley, Bowling Green, Kentucky.

ILLINOIS 60,000 acres in and near production. Illinois Minerals Company, Cairo, Illinois.

**ILLINOIS DRILLING**

Would like to contact companies or independents that have leases to drill up in the Illinois Basin area during cold weather. Have right-sized complete steam unitized rig. Would consider contract in cash and some interest.

**JOE M. BURNHAM**
561 Rutherford St.
Shreveport, La.
Phone: 8-5504

SOUTHEAST NEW MEXICO
Subdividing 160 acres in tracts as small as 1¼ acres. Buyers share in oil, gas and minerals under entire 160. Prices wholesale and retail. Wholesale prices quoted only to established dealers. Other bargains in State Leases and Royalties. Write for map and literature.
HARRY S. WRIGHT
Box 347, Santa Fe, New Mexico.

10 ACRES Fee Land, Lea County, N. Mex., leased to Sun Oil Co. All Oil and Potash rights go with the warranty deed. Surrounded by Major Oil Companies. Inquiries solicited. Roy G. Barton, Hobbs, New Mexico.

PENSIONS? $30. weekly? $200. monthly? Purely Political piffle for deluded dreaming dolts. But $200. income monthly and better is possible by $950. purchase of a lease and drilling one gas well. Ask H. B. Buddenborg, Osawatomie, Kansas.

GEOLOGICAL SURVEY shows an Oil structure on 954 acres. Will lease for 10% of first 5,000,000 barrels.
C. E. SLUTZ
Vega, Texas.

## Leases and Drilling Blocks

PARTY now conducting special geophysical exploration surveys for oil promise is often in contact with drilling block opportunities, leases, production, royalties and sometimes capital for development where favorable conditions exist. P. O. Box 364, Fort Worth, Texas.

NEW MEX. LEASES; Lea, Eddy, Chaves, Roosevelt, other SE Counties, 40,000 ac. blocks or spreads. Legitimate inquiries invited. GEO. M. COWELL CO., 412 W. 6th St., Los Angeles, California.

ONLY 280 FEET to Oil sands. Four oil wells, cased, no tubing. One gas well. House, barn. 160 acres, 90 cultivated Some bottom, timber. All yours, land, mineral rights, for $5000. BUDDENBORG, Osawatomie, Kansas.

FOR lease 130,000 acres of untested land in center of world's largest timbered plateau—All in Tennessee coal basin—Both oil and gas being produced here now. See or write G. E. Harrison, Crossville, Tenn.

**ILLINOIS BASIN**
**WAREHOUSE**

On Penn. R.R. 2 story and full basement. Also 3 tracts on Wabash side track. 3 Drilling Blocks with Geology. Also checkerboarded Leases for Sale. Write or See

**BEN F. KAGAY**
First National Bank Bldg
Effingham, Ill.

WANTED
ILLINOIS AND MICHIGAN BASIN PROSPECTORS; responsible and able to lease and develop. Virgin oil areas in the glacial drift regions which I discovered by geophysical research and natural and psycho-geology of petroleum engineering.
V. D. La Baw, 801 E. South St., Frankfort, INDIANA.

NEW MEXICO
State Oil and Gas Leases
Forty acres and multiples thereof at $6.00 to $30.00 per forty in the Hot Spots. Write for list. Twenty years in the business and not a complaint.
HARRY S. WRIGHT
New Mexico State Lessee, P. O. Box 347, Santa Fe, N. M., or P. O. Box 166, Council Bluffs, Iowa.

## Leases and Drilling Blocks

TEXAS leases in active counties cheap. Large or small tracts for brokers and salesmen only. Write H. H. WHITE, P.O. Box 674, San Antonio, Texas.

FOR LEASE N½ NE¼ section 7-13-6E. Lincoln Co. Oklahoma. H. E. POWERS, R. 6, St. Joseph, Missouri.

HAVE extra good spudder, can go 3,000 ft. Available about Nov. 10. Want drilling proposition and would prefer part acreage. Address Box J-613, The Oil and Gas Journal, Tulsa, Oklahoma.

## Situations Wanted

OIL Geologist, for 16 yrs. with world-wide concern, 10 yrs. in highly responsible position in various continents, six languages. Position or temporary assignments. Address: Box 1877, The Oil and Gas Journal, 1406 S. Grand Ave., Los Angeles, California.

GRAD. Pet. Engr. 14 yrs. exp. in producing, repressuring, engineering and geological work. Drlg. and develop. a specialty. Unemp. Good refs. Address Box J-602, The Oil and Gas Journal, Tulsa, Oklahoma.

MAN with 10 years experience in leasing and title work desires job with oil company, either office or field work—Good typist. Address Box J-642, The Oil and Gas Journal, Tulsa, Okla.

## Help Wanted

REFINERY CHIEF ENGINEER
Oil company operating four refineries, total capacity 25,000 barrels per day, requires the services of an Engineer experienced in design and construction of modern refinery equipment. In first letter give full information regarding Nationality, Religion, Age, Married or Single, Education, Positions held and salaries earned since Graduation. Our employees have been informed of this advertisement. Address Box J-610, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED: Reliable and experienced Gas Lift Sales Engineer. Give complete personal record with references. Address Box J-611, The Oil and Gas Journal, Tulsa, Oklahoma.

## Incorporations

DELAWARE CHARTERS: Complete service $35. Sumbitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

## Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

**Brokers—Salesmen**

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

**B. D. BUCKLEY**
Paul Brown Bldg., St. Louis, Mo.

Producing and Non-Producing
OIL ROYALTIES
Registered Dealers Only
GRIMES ROYALTY CO.
Hunt Bldg. Tulsa, Okla.

PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
703 Kennedy Bldg., Tulsa, Okla.

SOUTHEAST New Mexico—specializing in Oil Leases and Royalties; 18 years handling New Mexico Oil Properties. Inquiries solicited. Roy G. Barton, Hobbs, N. Mex.

FOR SALE. Royalties. Twenty year term non-participating clear Clark County, Kansas, land leased to Major Oil Co. Near heart of block. Northwest of 2500 bbl. producer. Suite 213-15 Miller Bldg., Liberal, Kansas. (Owner.)

## Survey Service

THE DOWSING METHOD for locating oil structures, faults, and treacherous areas, operates on the principle of vibratory response to emanations from petroliferous sub-strata. Our WATSON No. 2, pioneer well of the Wilmington, Calif., field was located by this method and all my personally owned production. 15 years' experience. The physico method may solve all your structural difficulties. Geo. Miller, 1548 Post Avenue, Torrance, California. Phone 983.

## Financing

CAPITAL SEEKERS—Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

INQUIRIES SOLICITED FROM CORPORATIONS INTERESTED IN RAISING CAPITAL THROUGH THE MARKETING OF CORPORATE SECURITIES.
BROWN HARTWELL COMPANY
110 EAST 42 ST., NEW YORK.

"NEW type capital financing by banks" started August 1938. 1500-word mimeo. bulletin $1.00. List of America's 64 leading underwriters who bought $300,000,000 in securities in 3 months of 1938. $3.00. JOHN MORRIS, 1040 South Paxon. Philadelphia, Pennsylvania.

## Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

## Crude Oil Production

WANTED—200,000 barrels of East Texas crude for monthly export to European Refineries. Indicate price f.a.s. Houston, gravity and daily quantity available. Write: BOURCIER, P. O. Box 827, Oklahoma City, Oklahoma.

## CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

| | | |
|---|---|---|
| *1 Inch* | *1 time* | *$5.00* |
| *1 Inch* | *13 times* | *4.50 per inch* |
| *1 Inch* | *26 times* | *4.00 per inch* |
| *1 Inch* | *52 times* | *3.50 per inch* |

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

## CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

| | 1 time | 2 times | 3 times | 4 times | | 1 time | 2 times | 3 times | 4 times |
|---|---|---|---|---|---|---|---|---|---|
| *3 Lines* | *$1.05* | *$1.80* | *$2.55* | *$3.30* | *7 Lines* | *$2.45* | *$4.20* | *$5.95* | *$7.70* |
| *4 Lines* | *1.40* | *2.40* | *3.40* | *4.40* | *8 Lines* | *2.80* | *4.80* | *6.80* | *8.80* |
| *5 Lines* | *1.75* | *3.00* | *4.25* | *5.50* | *9 Lines* | *3.15* | *5.40* | *7.65* | *9.90* |
| *6 Lines* | *2.10* | *3.60* | *5.10* | *6.60* | *10 Lines* | *3.50* | *6.00* | *8.50* | *11.00* |

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

**THE OIL AND GAS JOURNAL**
Tulsa, Oklahoma

Science Library

41

OCT 28 1938

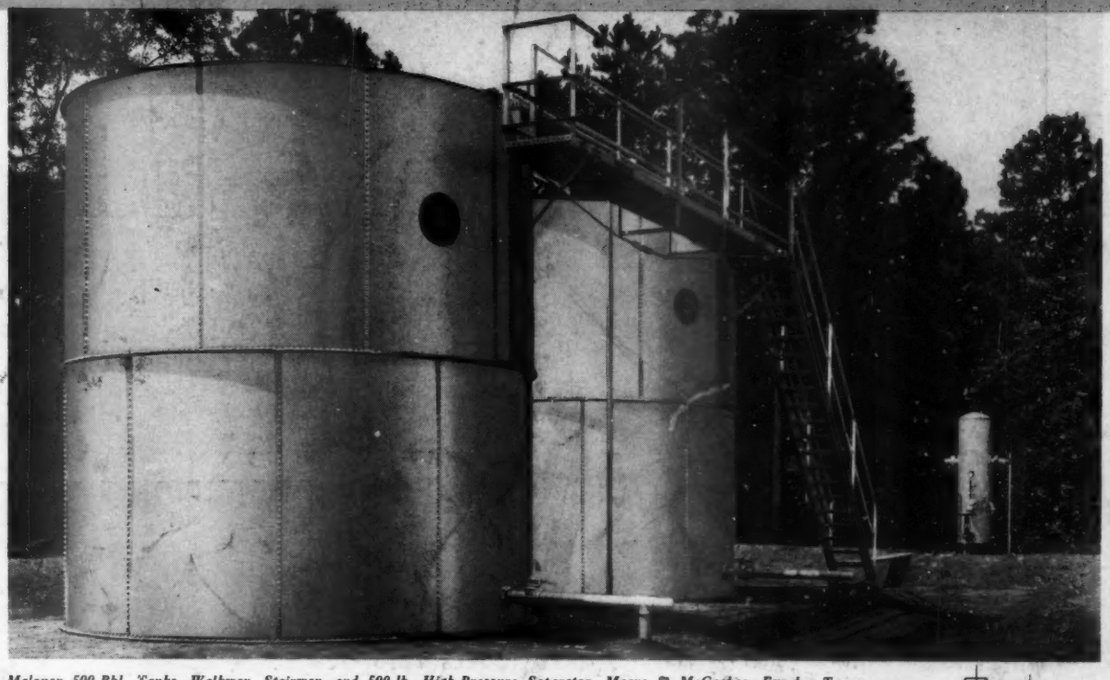

# The OIL AND GAS JOURNAL

CTOBER 27
1938

INOIS BASIN
ISSUE
including
28 x 34 Illinois Basin
OIL MAP
rinted in four colors

PRICE
CENTS





*Maloney 500-Bbl. Tanks, Walkway, Stairway, and 500-lb. High-Pressure Separator, Means & McGeehee, Eureka, Texas.*

## A MORE EFFICIENT SEPARATOR

The MALONEY Oil & Gas Separator was developed to make available to the Oil industry several important improvements in separator design. This separator, already in wide use, is setting new standards of efficiency, due to the following features:

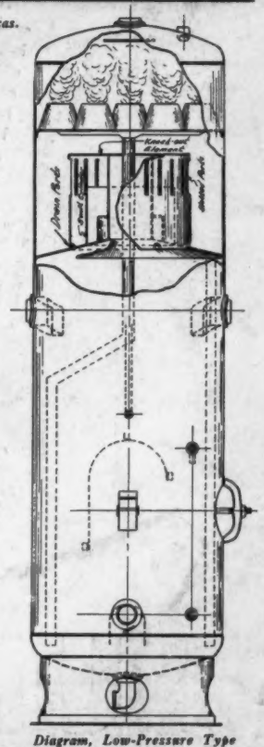
**Increased Capacity of Initial Chamber** — which provides additional initial expansion as the oil and gases enter the Separator, affording a higher vertical travel to release the heavy ends before the rising vapors enter the knock-out element.

**Improved Knock-Out Element** — which performs with higher efficiency the mechanical operation of separating the heavy ends or oils from the gas. It consists of three cylinders, the inner cylinder having openings or ports, with louvers forming a turbinated element. Passing through this turbinated cylinder, the gases create by velocity a strong swirling or cyclonic travel which causes them to pass many times around the inside of the outer cylinder. This outer cylinder, having slotted ports with scrubbing wings, impinges the heavy ends of oil, which drain to the bottom of the Separator.

**Improved, Patented Mist Traps.** Each trap, consisting of a turbinated or centrifugal cap with chimney, completely scrubs the vapors and eliminates all fine particles of mist.

**Perfected Mechanical Details** — including Valves with full-area passages, and Boiler-Type Manholes of 100% forged steel, machined for gasket seat.

Separator is thoroughly cleaned before painting. Primer is our special Red Chromated Iron Oxide paint, finish coat our highest-grade aluminum. Built in both low and high-pressure types, MALONEY Separators fully meet A.P.I. and A.S.M.E. standards. See Composite Catalog for details on Maloney Separators, Bolted Steel Tanks, Sectional Steel Stairways and Walkways, both Double-Hot-Dipped galvanized and painted.



*Diagram, Low-Pressure Type*

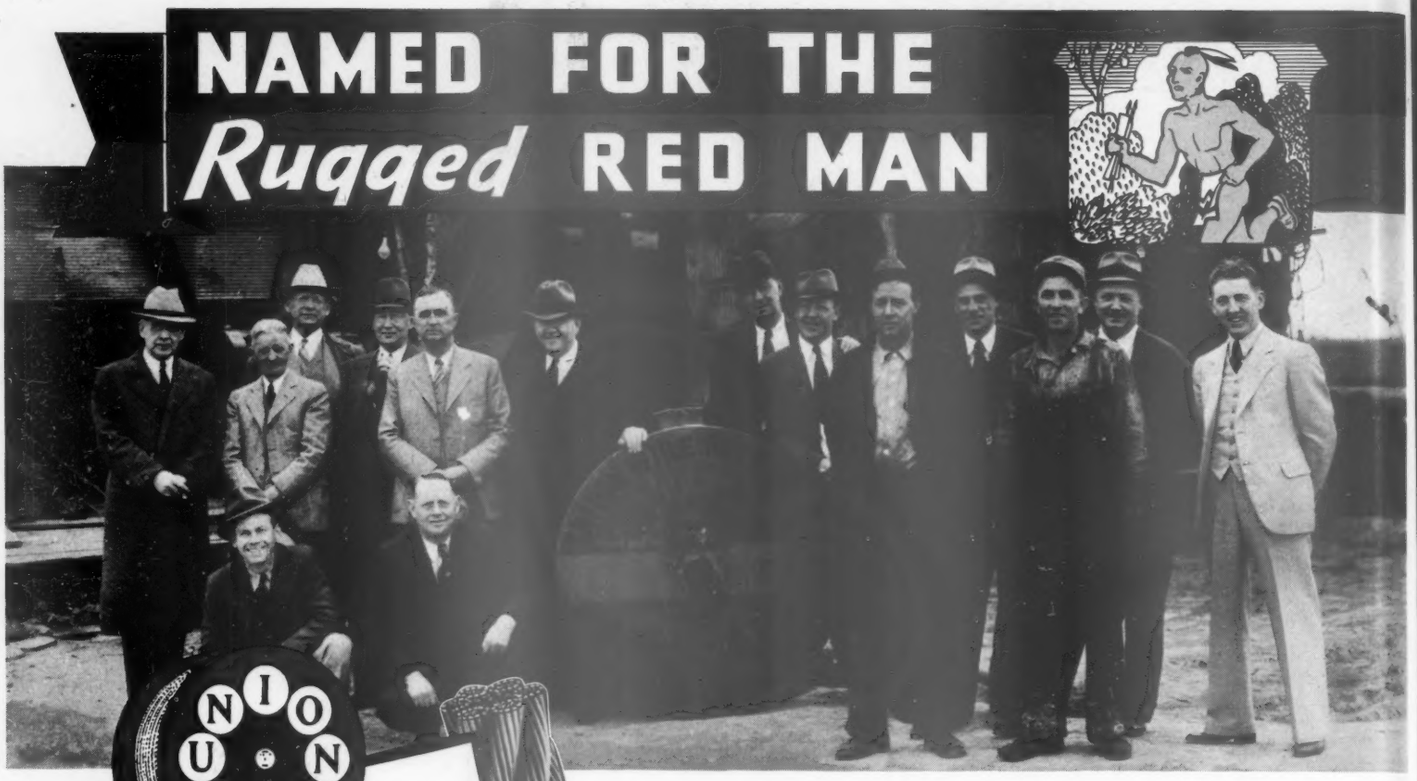
**Warehouse stocks at Principal Petroleum Points, including Salem, Illinois**

**MALONEY TANK MFG. COMPANY**

**38 N. Peoria** **Tulsa, Okla.**

MALONEY

# NAMED FOR THE *Rugged* RED MAN





UNION WIRE ROPE CORP

## AMAZING HARDIHOOD OF THE INDIAN

The American Indian probably exceeded any other race that ever lived, in physical courage and hardihood. To excel in feats of strength and skill and in ability to endure pain and hardship, was his ambition from early boyhood. To these ends, he pursued a rigorous program of self-discipline which, in addition to almost constant physical activity such as hunting, running, swimming, rowing and fighting,—also included floggings, self-inflicted tortures, and long periods of fasting.

It is reported that some of the Indian message carriers could run 100 miles in a day, and that Indian warriors could endure the most inhuman tortures of their enemies without allowing their bodies to flinch or their faces to show a trace of pain.

All UNION Wire Ropes meet all API Specifications

## INDIANA LIKES A *Rugged* WIRE LINE!

A number of state names were derived from Indian dialects — but Indiana was named for the American Indian, himself. The name, "Indiana", coined by early white settlers, means "Land of the Indians".

Indianians admire hardihood in products, as well as in men. UNION Wire Lines are popular in the Indiana oil and gas fields because of their ruggedness, their superior resistance to wear and tear, their ability to give long service.

The photograph shows a well three miles west of Sullivan, Indiana—drilled by BIG FOUR OIL & GAS COMPANY, INC., of Bridgeport, Illinois. The men, left to right, are: Front row—V. K. Michael, Ohio Oil Co.; Ham Mills; Ralph R. Stealey, driller, Big Four Co.; Herschell Lawson, tool dresser. Back row—Dr. J. G. Jones; Al Lasher; E. C. Wharf; Frank R. Evens, vice-president, Big Four Co.; C. O. Barnett; H. R. Gruber, manager of oil country sales, Union Wire Rope Corp.; E. E. Lewis, Dehydro Co.; L. M. Allison, bookkeeper, Big Four Co.; Ted Seitz; P. E. Taggart, superintendent, Big Four Co.; J. C. Printy, district salesman, Union Wire Rope Corp.

**UNION WIRE ROPE CORPORATION**

Oil Country Sales Offices: Beacon Bldg., Tulsa, Oklahoma
General Offices and Factory, Kansas City, Mo.

In Mexico: E. O. CHAPA, P. O. Box 504, Tampico, Tamps. Mexico. Stocks at Tampico.

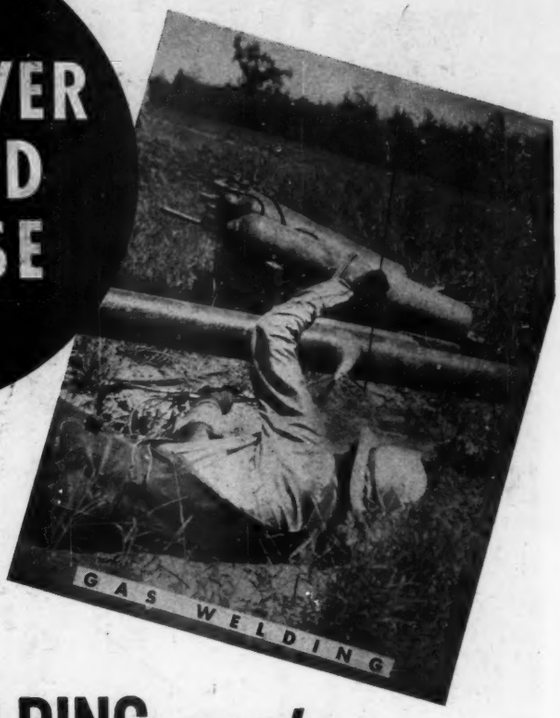
JARECKI MFG. CO. Distributors: Midcontinent, New Mexico and Eastern Fields.

Export Agents: (except Mexico) LUCEY EXPORT CORP., Woolworth Bldg., New York; Broad St. House, London.

# UNION WIRE LINES

The "ULTIMATE LOW COST WIRE ROPE"

# WHICHEVER METHOD YOU USE




# Here's *your formula for lowest* PIPE LINE WELDING *costs*

***"Use AIRCO as your source of supply for all your pipe line welding needs"***

This formula applies whether you weld with gas or with the electric arc, because AIRCO is the one company that can supply you with *anything and everything* you need for either method. But why does this formula produce lowest costs?

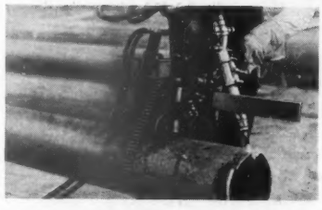
IF YOU WELD WITH GAS, the answer is, you get the benefit of the fast, economical AIRCOWELDING process that cuts pipe welding time in half and saves from 30% to 50% in rod and gases. And you get the benefit of AIRCO Gases and AIRCO-DB Welding Equipment and Supplies, a complete line, unexcelled in quality and offering many time-and-money-saving advantages in design and performance.

IF YOU WELD WITH THE ELECTRIC ARC, you get the benefit of the WILSON "YELLOW JACKET", the outstanding gas engine driven arc welding machine specifically designed to stand the gaff of pipe line welding service. And you get the benefit of Electrodes—"Bell Hole" and "Roll Weld"—specifically developed for these operations.

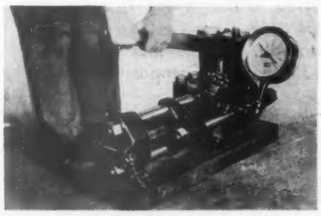
And last, but far from least, as an AIRCO customer you get the practical cooperation of AIRCO'S pipe line welding experts, right in the field, to help you capitalize the cost-reducing features of AIRCO Pipe Welding Processes and Equipment to the fullest extent. This is a real *service* worthy of the name.

The AIRCO formula has proved its worth to a long list of pipe line companies and contractors. Try it on your next pipe line job. Call or write the nearest office.

**TWO VALUABLE PIPE WELDING ACCESSORIES**



*The AIRCO-DB Portable Pipe Cutting and Beveling Machine preparing pipe for welding. Cuts and bevels in one operation.*



*The AIRCO-DB Portable Weld Testing Machine for testing welds on the job. Makes both tensile and bend tests.*

# AIR REDUCTION

**SALES COMPANY**

**General Offices: 60 East 42nd St., New York, N.Y.**

**IN TEXAS**

**MAGNOLIA AIRCO GAS PRODUCTS CO.**

HOUSTON—BEAUMONT—WICHITA FALLS—FORT WORTH—EL PASO—SAN ANTONIO

**AND**

**CRUTCHER-ROLFS-CUMMINGS**

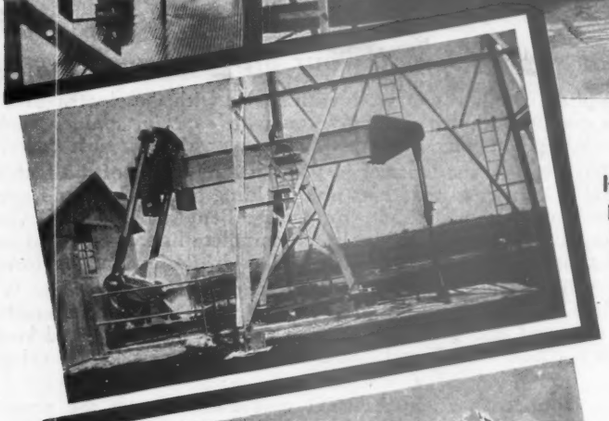
HOUSTON

**AIRCO DISTRICT OFFICES**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Baltimore | Boston | CHICAGO | Dayton | Jersey City | Louisville | Nashville | Philadelphia | Richmond | Shreveport, La. |
| BETTENDORF, IA. | Buffalo | Cincinnati | Detroit | Kansas City, Mo. | MILWAUKEE | New Orleans | Pittsburgh | San Francisco | St. Louis |
| Birmingham | Charlotte | Cleveland | Grand Rapids | Los Angeles | Minneapolis | Oklahoma City | Portland, Ore. | Seattle | Wheeling |

Represented in Canada by Railway & Engineering Specialties, Ltd., Toronto, Montreal, Winnipeg

AIRCO *Anything and Everything for* GAS and ELECTRIC ARC WELDING and GAS CUTTING WILSON



PARKERSBURG
PUMPING UNITS

It's always a temptation to get by as reasonably as possible when the time arrives to equip your wells for pumping. It may pay in some cases, but there is no assurance that a well will be as easy to produce two years from now as it is today, or present the same problems. And if the equipment proves to be too light or is improperly designed lifting costs will go up by leaps and bounds as the pumping job becomes tougher.

That's why more and more operators are looking ahead and specifying Parkersburg pumping equipment. Their wisdom is reflected in the many records of lowered lifting costs on wells equipped with Parkersburg Quality-Built Pumping Units.

If you have wells to equip and want to be sure they will be produced as economically as possible for the next five to ten years the Parkersburg representative in your field will be glad to consult with you. His number is listed on page 1613 of the Composite Catalog.

**THE PARKERSBURG RIG & REEL COMPANY**

PARKERSBURG, W. VA.

DALLAS · HOUSTON · TULSA · LOS ANGELES · NEW YORK


*The Oil and Gas Journal*, issued weekly by The Petroleum Publishing Company, 211 South Cheyenne Avenue, Tulsa, Oklahoma. Subscription prices: Domestic, $6.00 a year; foreign, $7.00 a year. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Oklahoma, under the Act of March 3, 1879.

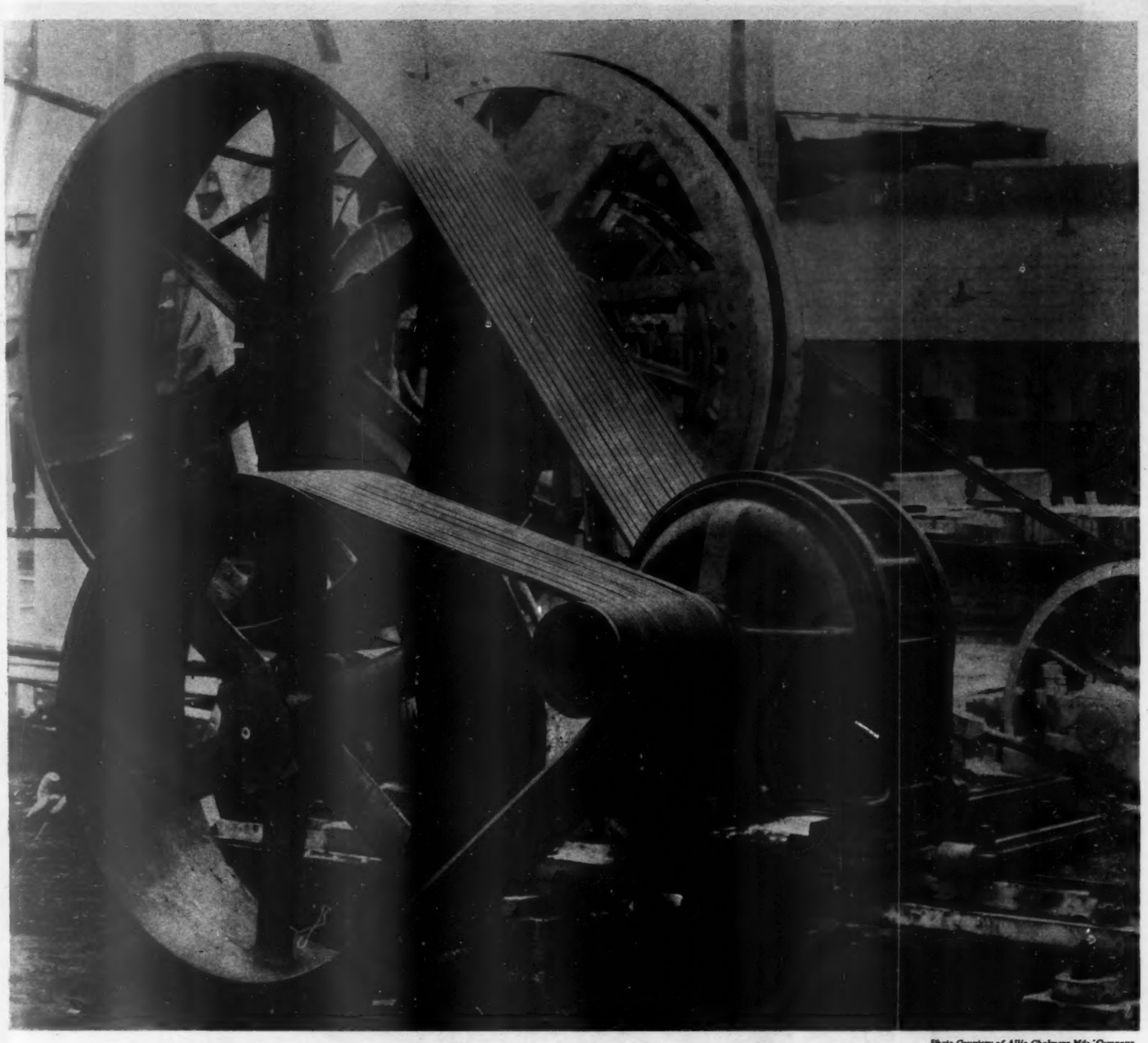


*Photo Courtesy of Allis-Chalmers Mfg. Company*

# Why GOODRICH V-Belts Assure You More Steady Operation, Save Time, Trouble, Money

WHETHER you use them on drilling or pumping, Goodrich V-Belts start saving for you the day you put them on your drives.

1. More Power—Goodrich V-Belts are furnished in accurately matched sets. A special machine measures the belts under operating tension, and sets of equal length are selected. This means every belt in a Goodrich set carries its full load and so more power is delivered, sets wear evenly, and last longer.
2. Last Longer—Goodrich V-Belts last longer—6 times as long as belts of a few years ago. They are made with special Goodrich low-stretch cord which maintains tension of the belt and so prevents the destructive wear which results when other belts stretch and begin to slip. Goodrich V-Belts last longer, too, because they are made with Goodrich Age-Rite—a compound which improves ageing properties as much as 200%—and with a special rubber which reduces internal destructive heat by 75%. Another addition to life is the Goodrich cover which keeps out moisture and oil, and prevents ply separation.
3. Steady Operation—Goodrich is the true V-Belt—it is of straight-side construction and so grips by side pressure as a V-belt should. Result is you can use a Goodrich belt with low, easy tension and, because of its special low-stretch cords, it will maintain that tension throughout its long life. With low tension you'll have fewer repairs and replacements of bearings, and with no slippage you'll have fewer belt failures. When a Goodrich V-Belt finally fails, there's no need to shut down. The others on the drive will carry the load until a shutdown is convenient.

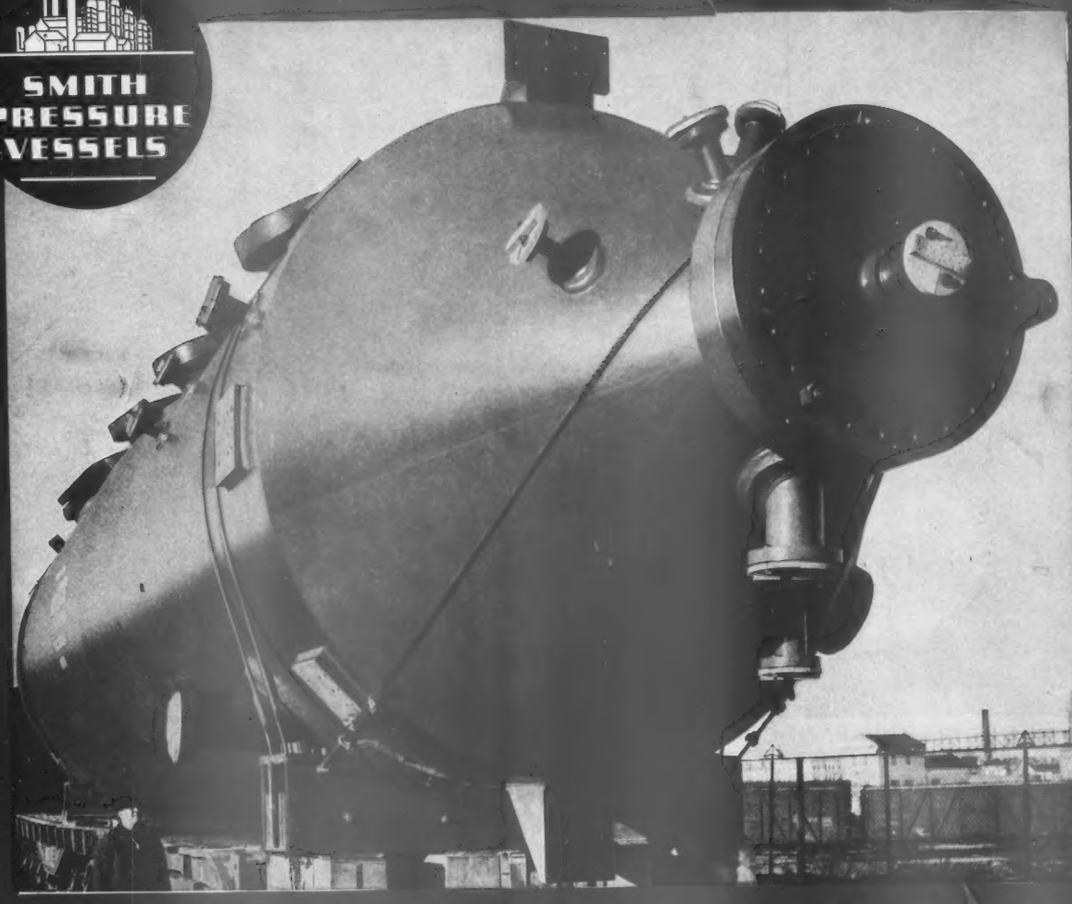
Goodrich V-Belts are quickly available everywhere. Call your Goodrich Distributor. Order Goodrich V-Belts now—and start saving money, time and trouble. The B. F. Goodrich Company, Mechanical Rubber Goods Division, Akron, O.

**Goodrich**

ALL *products* *problems* IN RUBBER

# NEW

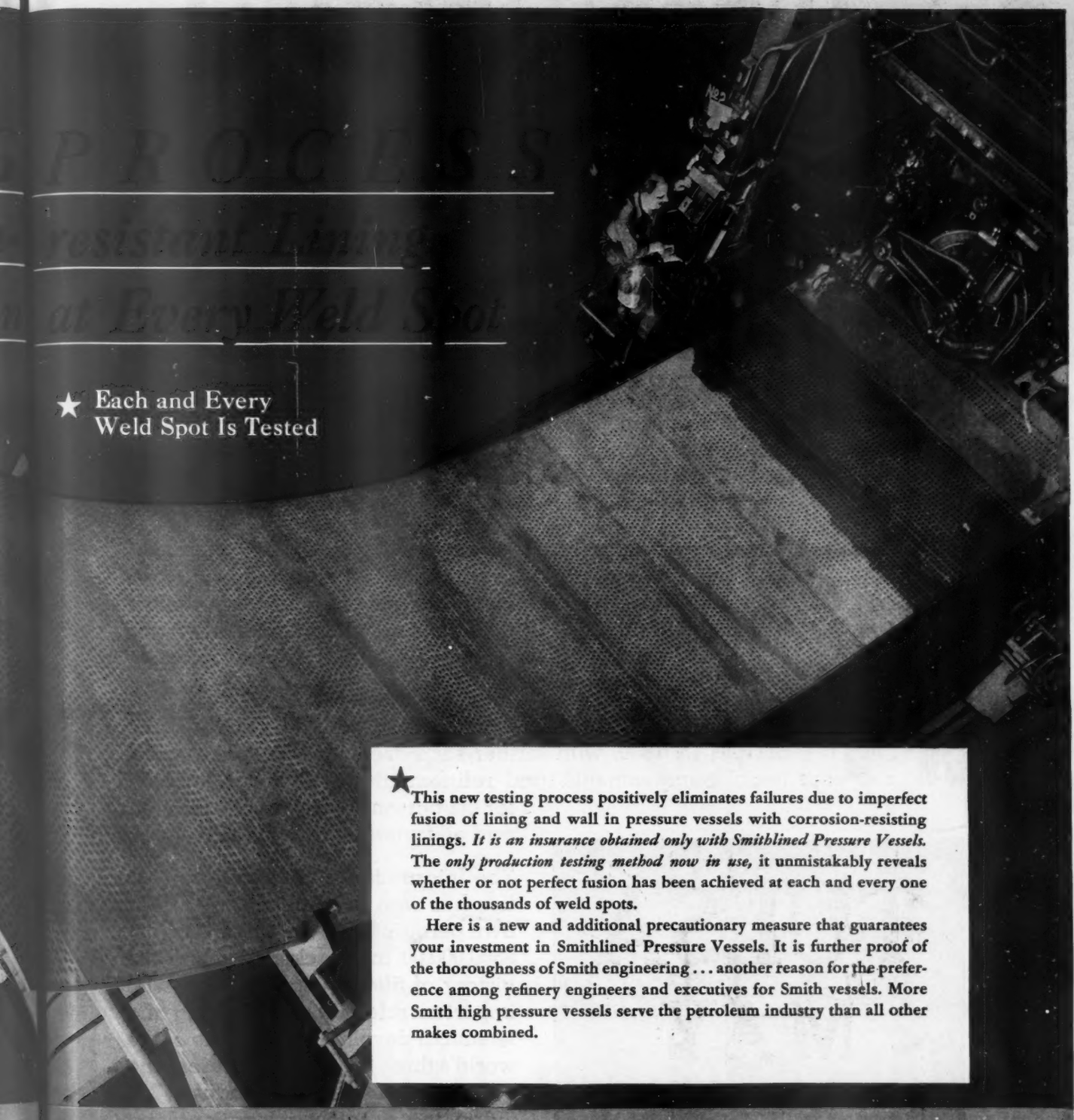
SMITH PRESSURE VESSELS



# A.O. SMITH CORPORATION

MILWAUKEE, WISCONSIN

*District Offices:* New York • Pittsburgh • Chicago • Tulsa • Dallas • Houston • Los Angeles




★ **This new testing process positively eliminates failures due to imperfect fusion of lining and wall in pressure vessels with corrosion-resisting linings. *It is an insurance obtained only with Smithlined Pressure Vessels.*** **The *only production testing method now in use,* it unmistakably reveals whether or not perfect fusion has been achieved at each and every one of the thousands of weld spots.**

**Here is a new and additional precautionary measure that guarantees your investment in Smithlined Pressure Vessels. It is further proof of the thoroughness of Smith engineering . . . another reason for the preference among refinery engineers and executives for Smith vessels. More Smith high pressure vessels serve the petroleum industry than all other makes combined.**

PIONEER MANUFACTURERS OF ELECTRIC-WELDED

# PRESSURE VESSELS

SMITH HIGH YIELD CASING • SMITH LINE PIPE

The 1938 International Petroleum Exposition was indeed a great oil show—by far the largest, best and most widely attended in history—truly, the greatest exposition in the world devoted to a single industry.

For this outstanding success, we are indebted to the manufacturers, distributors and supply companies serving the petroleum industry, and to the oil fraternity for its record-breaking attendance.

It took courage and faith to execute the $150,000.00 expansion and improvement program which gave the 1938 show fifty per cent additional exhibit space; the new restaurant; administration building; Hall of Science and many other new and enlarged facilities and services so essential to the satisfactory handling of the show.

WE ARE PLANNING AN EVEN BIGGER AND BETTER EXPOSITION IN 1940, with further increased exhibit space, additional improvements, and refinements in physical facilities for the personal services of exhibitors and oil fraternity alike.

The International Petroleum Exposition has won its spurs. Housed in its own permanent 25-acre plant costing $500,000.00, and backed by a brilliant history of fifteen years packed with important scientific, engineering and technical developments of one of the world's three greatest industries. The "World's Fair of the Oil Industry" is today the greatest educational industrial institution in the world. Plan now to participate in another record-breaking exposition in 1940.

**INTERNATIONAL PETROLEUM EXPOSITION**

TULSA, OKLA., U. S. A.

W. G. Skelly, President

Wm. B. Way, General Manager

# NEW ACCURACY, SPEED, EASE
## In Making Oil Maps...

## With the NEW BRUNING-WALLACE
# CIVIL ENGINEER'S DRAFTER

**What does it do?** From transit—to field book—to map—is a short, swift process when you use the new model Bruning-Wallace Civil Engineer's Drafter.* This new Drafter gives you the same accuracy in map making as the transit does in surveying—yet enables you to have the finished map in a fraction of the time ordinarily required! Bearings or azimuths can be set off on this protractor just as they have been noted in the surveyor's field book. You can have the same accuracy in making the map that the surveyor had in making his field notes.

**How is it done?** The full circle protractor of this new Drafter is larger for greater accuracy in setting angles—protractor is graduated same as a transit. It is numbered with two rows of figures, the inner row of figures for azimuth readings being numbered 0° to 360°, while the outer row is numbered in each quadrant from 0° to 90°. Other important advantages are micrometer adjustment screw—double vernier reading to single minutes and set flush with protractor to eliminate parallax . . . large, clear magnifier always in position for reading.

**What about a free trial?** Yes, certainly! We want you to see for yourself the amazing ease and speed which this new drafter brings to map work. Responsible companies may have a Bruning-Wallace Civil Engineer's Drafter on a 15-DAY FREE TRIAL BASIS—with absolutely no obligation. Try one of these machines for yourself—see how much it can do to speed up your map making—how great an advantage its unfailing accuracy can bring you. Mail the coupon now for free trial offer or complete facts about Bruning-Wallace Civil Engineer's Drafting Machine.

**Standard drafter with Touch Control also available*

# BRUNING

*Since 1897*

**Houston • Pittsburgh • Kansas City • Los Angeles**
Boston • Chicago • Detroit • Milwaukee
Newark • New York • St. Louis • San Francisco

CHARLES BRUNING COMPANY, INC., Houston, Texas, 1 Main St. Pittsburgh, Pa., 610 Smithfield St. Kansas City, Mo., 1320 Walnut St. Los Angeles, Calif., 818 Santee St. 904

☐ Please send me a Bruning-Wallace Civil Engineer's Drafter for a 15-Day free trial.
☐ Please send me your free booklet of Bruning-Wallace Drafting Machines.

*Name*_____

*Address*_____

*City*

# Again MURPHY Steps Out!

MURPHY DIESEL ENGINE
PROVED IN SERVICE
ROHL-CONNELLY CO.
Los Angeles, Cal.
JOHN C. BILLES
Terre Haute, Ind.
H. A. STEPHAN COAL CO.
Commerce, Indiana
U. S. ENGINEERS
Fort Peck, Mont.
WALSH CONSTRUCTION CO.
Davenport, Iowa
LEE WILSON
Dyersburg, Tenn.
SBELL CONSTRUCTION CO.
Reno, Nevada
E. ALBRECHT
Cairo, Ill.
D. & BAILES
Ashton, Indiana
SONNVILLE COAL SALES CORP
Bonville, Indiana
JOHN W. HARRIS DRILLING CO.
Wichita Falls, Tex.
JOE HENDRIX
Hebbronville, Tex.
LONE STAR CONSTR. CO
San Antonio, Tex.
FRED MANNIX
Calgary, Canada
MEXICAN GOVERNMENT
Santa Catarina, Michoacan, Mexico
THE OHIO OIL COMPANY
Houston, Texas
Lot, Fifth
Winnipeg, Canada
ROCK & LAKE COMPANY, INC.
Baton Rouge, La.
SOUTHERN RAILWAY CO
Washington, D. C.
U. S. ENGINEERS (Mud Mt. Dam site)
Washington, D. C.
Lasting, Wash.
U. S. DREDGING CO
Redding, Cal.
W. J. HASTINGS CO.
St. Louis, Missouri
PIOMBO BROTHERS
San Francisco, Cal.
GOVERNMENT OF BRAZIL L.F.O.C.S. Dept (S.A.)
Fortaleza, Brazil
CAPITAL MATERIALS CO
Washington, D. C.
GEO. W. CONDON COMPANY
Omaha, Nebraska
GIBSON, FUGATE COAL CO
Rand, Utah
HARD, LIOTLA & HANSON
Tower, Minn.
LANEY-MARSHALL GIN CO
Osceola, Arkansas
4
2
2
2
2
2
2
2
2
2
2
2
2
2
2
2
1
1
1

# QUICK DELIVERY TO ILLINOIS FIELDS

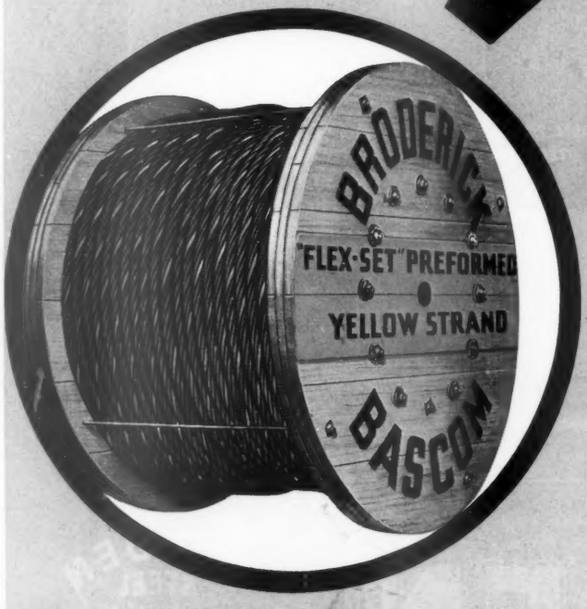
Can you imagine a more satisfactory set-up for service than this?—

Main factory and warehouse at St. Louis, from which overnight shipments can be made to Illinois fields when necessary.

Continental Supply Co., always carrying large stocks of Broderick & Bascom Wire Lines at three Illinois points—Centralia, Noble, St. Elmo—and at Owensboro, Ky.

And such wire lines! "Flex-Set" Preformed Yellow Strand Rotary Lines, made by the Broderick & Bascom Rope Co., with 62 years' experience making nothing but wire lines.

# "FLEX-SET" PREFORMED YELLOW STRAND ROTARY LINES




No wonder these marvelous lines give such long, economical service.

Made of special wire, carefully tested and selected, wires and strands shaped to a permanently helical form before going into the rope—all this gives "Flex-Set" Preformed Yellow Strand unusual properties that make for long life in rotary drilling.

It is limp—reeves easily and quickly—spools evenly—operates smoothly—is highly resistant to kinking, drum crushing and metal fatigue.

Use "Flex-Set" Preformed Yellow Strand for economical rotary drilling.

**REMEMBER—Quick delivery from five points, including overnight delivery from St. Louis factory.**

W-24

**BRODERICK & BASCOM ROPE CO. ST. LOUIS**

FACTORIES: ST. LOUIS, SEATTLE, PEORIA.

# HOW BRADEN BUILDINGS SAVE MONEY

## *for Illinois Operators*

BRADEN ILLINOIS FIELD STORE

BRADEN ENGINE AND BELT HOUSE

In the Illinois fields, BRADEN Sectional Steel Buildings are bringing operators these 5 important savings:

1) By being constructed from standardized sections, they provide Low Initial Cost.

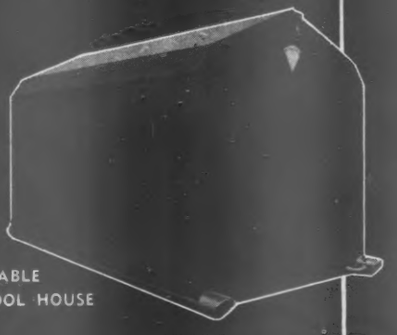
2) All parts are quickly bolted together, resulting in Low Erection Cost.

3) They are made from the most durable materials, assuring Low Maintenance.

4) They are absolutely weather-tight, and thus give oil equipment Complete Protection.

5) They are easily dismantled and re-erected at new locations, with practically 100% Salvage.

For maximum dollar value, standardize on BRADEN Buildings. A 15-Year Tradition of Reliability and Service! See our section in Composite Catalog.



BRADEN PORTABLE STEEL TOOL HOUSE

BRADEN PIPE LINE STATION

**Designers — Fabricators — Erectors**

BRADEN STEEL CORPORATION
1007 E. Admiral Blvd. Tulsa, Okla.
Gulf Coast Representative: Brance-Krachy Co., Inc.,
4411 Navigation Blvd., Houston, Texas

# BRADEN

BRADEN STEEL CORPORATION TULSA OKLA

# WHAT OIL MEN ASKED FOR

## *TWO PORTLAND CEMENTS —BOTH MADE FOR OIL WELLS*

OIL-WELL work presents special problems which all-purpose cements were not designed to meet. Recognizing this fact, more than a decade ago Lone Star Cement Research Laboratories perfected 'Incor' 24-Hour Cement, which sets normally but hardens in one-fifth the usual time—the high early strength cement with an outstanding record of successful results in oil-well work.

### *Meeting Oil-Well Needs*

Then, closely following oil-field developments, Lone Star met the newer problems presented as wells became deeper and hotter. And 'Starcor' Cement was perfected.

Both 'Starcor' and 'Incor' are true Portland cements, in all that the term implies. No admixtures or adulterants are used or needed. By carefully perfected processing methods, the needed special properties are built into the cement itself.

Thus, both 'Starcor' and 'Incor' pump easily in 15- or 16-lb. slurries. Stay gel-like to resist mud contamination. Provide a stronger, denser shut off.

### *Controlled Setting Time*

And both cements have controlled setting time—an in-built safety factor to allow the slurry to get to the bottom of the well, with ample leeway for unforeseen contingencies. 'Incor' is "timed" for cementing wells of medium depth, while 'Starcor' is timed to set slowly in even the deepest wells, in the presence of high temperatures.

Then, while timed to set normally, both 'Starcor' and 'Incor' harden rapidly and thoroughly, once they are in place, and provide quick protection against gas agitation and ground-water seepage. You can drill out in 1 to 2 days with 'Incor'—2 to 3 days with 'Starcor'.

And both cements resist sulphate-water action, 'Starcor' being specially designed to provide extra protection where these conditions are serious.

### *Record of Dependability*

Here, then, are two oil-well cements, made just as oil men wanted them made. Backed by Lone Star's 37-year record for unvarying quality and uniformity. Use 'Starcor'* or 'Incor'* on your next job. Both are stocked by Lone Star Dealers, for immediate service. Lone Star Cement Corporation, Dallas—Houston. Cable address: Cementus, Dallas.

*Reg. U. S. Pat. Off.

# ENT CORPORATION

24-HOUR CEMENT • 'STARCOR' CEMENT

# Ton-Mile Service Records *prove* Excellay Economy

EXCELLAY Preformed Rotary Lines are constantly growing in popularity for one important reason—*economy*. We have recommended that users of Excellay Preformed Rotary Lines keep ton-mile service records and, where this has been done, the result has always been further proof of the economical service Excellay Preformed Rotary Lines can give.

This economical performance is due to the fact that in Excellay Preformed Rotary Lines a more even distribution of load is secured. They resist fatigue and whipping—offer ease and safety in handling, are more flexible and spool better on the drum. Furthermore, these lines are fully lubricated inside and out with a high-grade lubricant.

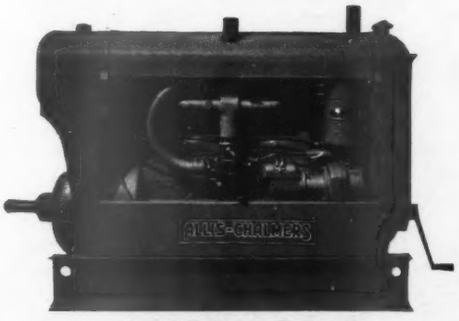
Check over these important advantages. Each of them means *economy*. Together, they are an indisputable reason why you should let American Tiger Brand Excellay Preformed Rotary Lines go to work for you.

**AMERICAN STEEL & WIRE COMPANY**
Cleveland, Chicago and New York
**COLUMBIA STEEL COMPANY**
San Francisco
United States Steel Products Company, New York, *Export Distributors*

**UNITED STATES STEEL**

One major operator in Illinois has 38 of the flexible power Allis-Chalmers pumping engines operating in the Clay City, Olney, and Noble Pools.

# The Best Solution for Power Problems




**Model E Power Engine**

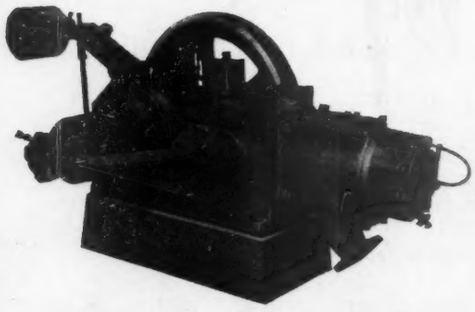
Four cylinders, 5¼" bore, 6½" stroke. Motor operating speed 500 to 1,200 r.p.m. Torque 375 ft. lbs. at 700 r.p.m. Burns natural gas, gasoline or distillate.

— is the installation of heavy duty Allis-Chalmers power units. From the standpoint of economic return from your wells, when pumping becomes necessary, one of the four sizes of A-C engines available will show *low first cost* with reduced maintenance; *lower operating cost*, because cheap natural gas can be used, and highly efficient lubricating systems; *longer useful life* of equipment, because these slow speed tractor type engines *are* designed for continuous operation in stationary service. Their *flexible power* assures you that the size engine originally installed will meet all pumping conditions throughout the life of the well.

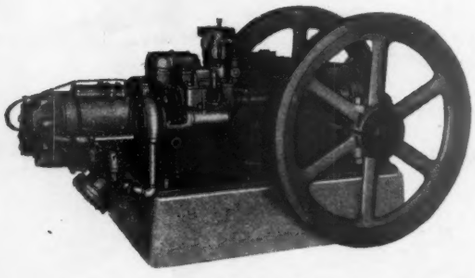
Allis-Chalmers engines are available in the following sizes: Model L, 550 ft. lbs. torque at 650 to 700 r.p.m. Model E, 375 ft. lbs. torque at 650 to 700 r.p.m. Model U, 200 ft. lbs. torque at 900 r.p.m. Model W, 128 ft. lbs. torque. All units burn natural gas, gasoline, or distillate.

# REID POWER

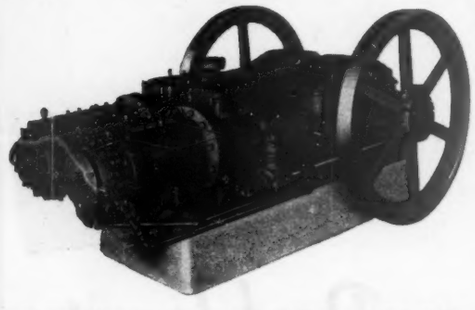
## FOR ILLINOIS and KENTUCKY



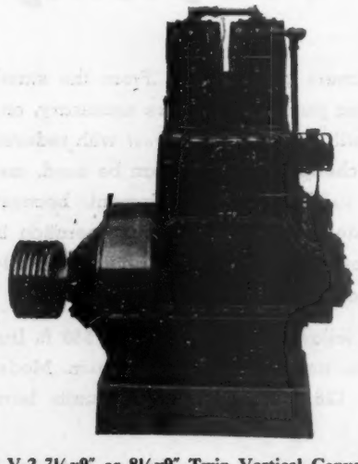
Reid Terrier 7½x9" or 8¼x9" Convertible Engine.



Reid DC 9x12", 10¼x12", or 11½x12" Convertible Engine.



Reid DC 12", 14", or 16" Stroke Twin Convertible Engine.



Reid V-2 7½x9" or 8¼x9" Twin Vertical Convertible Engine.

Reid Power for every purpose is available to the Illinois and Kentucky operator. Reid Engines, Single and Twin Cylinder, Gas, Full Diesel, and Medium Compression Oil, are provided in sizes ranging from 15 HP to 200 HP and will meet prime mover requirements for single well units, central power pumping, drilling, pipe line pumps, compressors and generator drives.

Reid Geared Powers and Reid Bandwheel Powers are also furnished in a wide range of sizes to meet every pumping power need. The line of powers includes Completely Enclosed Geared Powers, Underpull Geared Powers, and Bandwheels from 16-foot to 32-foot diameters.

Clutch and Power Transmission Machinery can be supplied to fit any particular job, and can be for V-Belt or Flat Belt Drive or direct-connected drive, and for straightaway or reverse work.

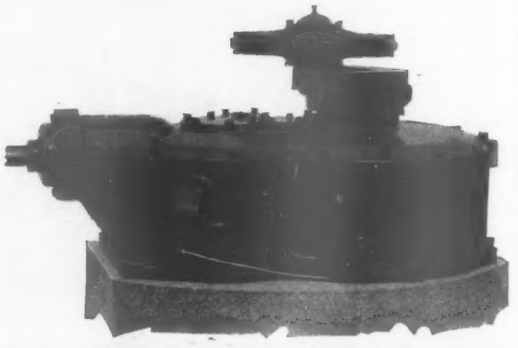
Pumping Units, for single well or two or three well hook-up can be furnished for 6,000, 10,000 or 14,000 pound polished rod load.

Reid Engineers are ready at all times to cooperate in working out your machinery problems, and make recommendations for the equipment best suited to meet any specified requirements. Reid Products are distributed in Illinois and Kentucky through the Frick-Reid Supply Corporation who maintain stores in Salem, St. Elmo, and Clay City, Illinois, and Owensboro, Kentucky.

**Joseph Reid**
**Gas Engine Co.**
OIL CITY, PENNSYLVANIA

*Distributors:*
Frick-Reid Supply Corporation, Pittsburgh, and Tulsa.
R. B. Moore, Bolivar, N. Y.

Reid UP-10 10,000 Pound Unit. Also furnished in 6,000 and 14,000 Pound Polished Rod Load Sizes.



Reid PE-3 Enclosed Geared Power, rated 30 HP at 20 SPM.

Reid P-40 Underpull Geared Power, rated 40 HP at 20 SPM.

Reid Bandwheel Power, with 16, 18, 20, 24, or 32-foot Wheel.

# IN THE ILLINOIS BASIN

## THESE TOOLS ARE GETTING THE JOB DONE!

1 Notice how the strong "locking-arms" on the "100" Triplex form closed C-links. No danger of elevator links or swivel bail "jumping" this hook.

2 Here's the new "50" BJ Triplex Drilling Hook, for portable rigs, exploratory work, drilling in with tubing, or other operations where 50-ton loads are handled. The overall length of only 71 inches makes it the perfect hook to use in short derricks.

3 Your crews will appreciate using this 30-ton hook made exclusively for handling tubing. The locking-arm provides increased strength and positive safety. There are 2 larger sizes of BJ Tubing Hooks, for use where long, heavy strings of tubing are being run.

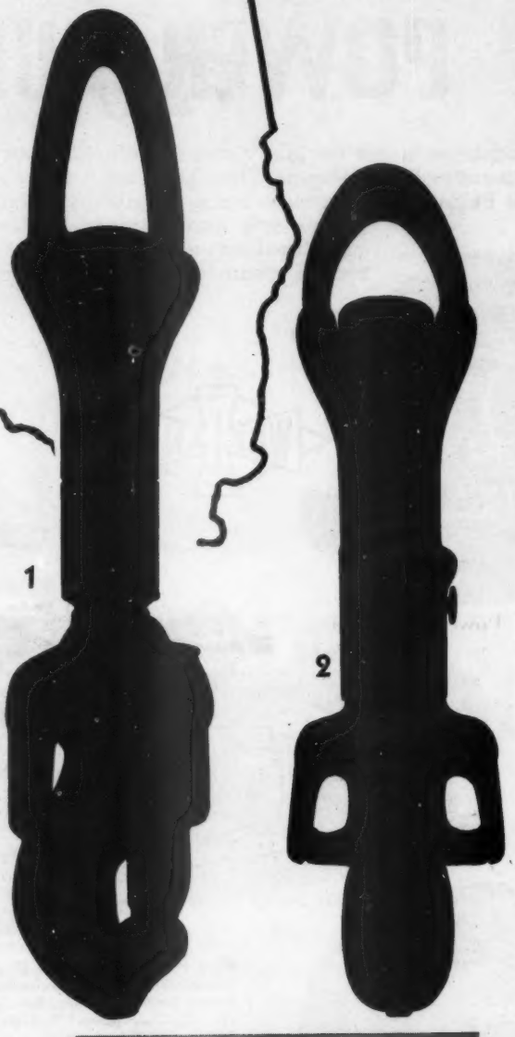
4 When the BJ Snapon Tubing Tong is locked in place, tight joints are no problem. The "back-up lever is handy for correcting a cross-thread without removing tong from the tubing.

5 Balance the Open End tong in one hand—hook it around the tubing—it grips at the first pull, ratchets perfectly, and stays in place until the operator rolls it easily down and off the tubing.

6 Complete "Tubing Insurance" while running-in, coming-out, or while pumping is provided by the BJ Shortype C Tubing Catcher. You'll wonder how it can be priced so low!

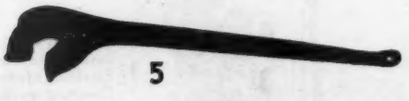
7 Grip the guarded operating latch on this BJ Rod Hook, and the "locking arm" opens to pick up the elevator bail. The weight of the string of rods closes the locking arm and locks it in place. There's a 10-ton size; also a "spring" type for 20 tons of rods.

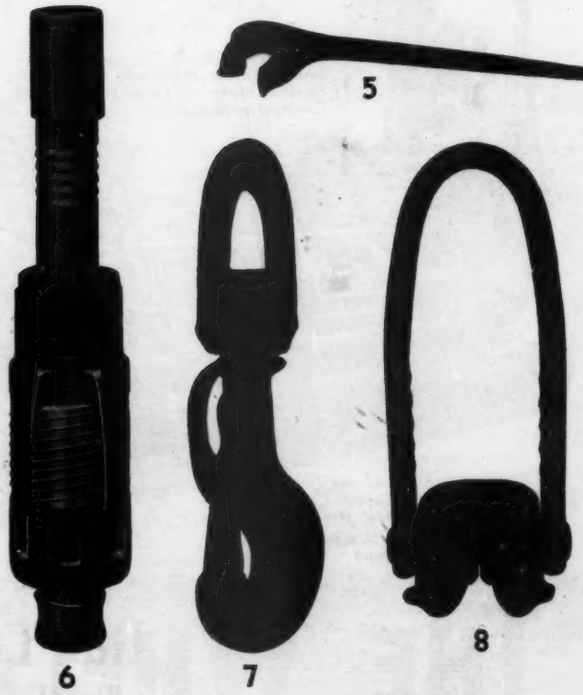
8 The BJ Full Circle Rod Elevator has a fully heat treated body bored to take the contour of the rod which then hangs vertically and is not easily kinked or damaged.




Look on *any* rig in the Illinois Basin and you will find BJ Tools helping to make both Drilling and Production faster and safer — saving time — "getting the job done right."

Look them over here — especially the brand new "50" BJ Triplex Hook (at left) which has all the features of strength and ease of operation of the larger Triplex Hooks, and is priced so low that no well can afford to be without one.



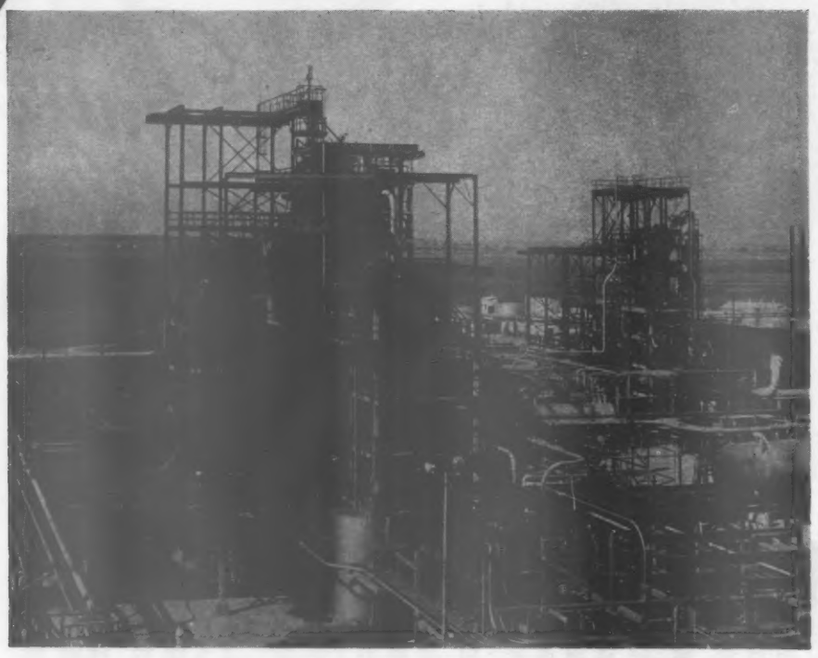




Complete descriptions and prices are in the 1938 Composite Catalog—and the BJ Catalog which will be sent to any oil man who requests it.

BYRON JACKSON CO.

Houston • LOS ANGELES • New York

# BJ DRILLING AND PRODUCTION TOOLS



# LARGE THERMAL POLYMERIZATION PLANT

## IN CONJUNCTION WITH COMBINATION TOPPING AND CRACKING UNIT

The Thermal Polymerization Unit shown in the above illustration handles over 2900 barrels per day of liquid condensed from low commercial value refinery gases and produces a premium grade motor fuel.

The economic value of the flexibility inherent in thermal polymerization units—due to the fact that the charging stock can consist of either saturated or unsaturated gaseous hydrocarbons—or both—should be investigated by refiners and natural gasoline plant operators through this organization or its agent, The M. W. Kellogg Company.

Licenses granted under United States and Foreign Patents by

**THE POLYMERIZATION PROCESS CORP.**

**15 EXCHANGE PLACE • JERSEY CITY, N. J.**

# For Your Drill Pipe's Sake

## KINZBACH-AJAX
Rotary Slips

**Fellows like these, who know from experience, will vouch for these 10 advantages you get in this**

## *Fast Selling, Long Lasting Rotary Slip*

**Broad faced inserts** eliminate scarring of drill pipe and casing.

**Alloy steel body** gives greater strength to meet today's deep well requirements.

**Inserts,** held in place by two alloy steel pins in each segment, prevent loss through shearing action or breakage.

**Three segments to the half** provide greater flexibility and closer pipe fit.

**Broad area of backs** protects rotary master bushing against cutting.

**Even distribution of load** over entire gripping surface is assured because each insert is individually anchored to slip segment.

**Easily dismantled and serviced** right on the derrick floor, eliminating machine shop overhaul.

**Due to design of segments,** drilling mud drains back into hole, instead of on derrick floor.

**Light weight** keeps excess lifting burden off of roughnecks.

**Costs are reduced** since, by changing inserts, several pipe sizes can be handled with one set of segments.

**AVAILABLE THROUGH LEADING SUPPLY STORES . . .**
**WRITE FOR BULLETIN GIVING DETAILS AND PRICES**

## KINZBACH TOOL CO., INC.
**HOUSTON, TEXAS**

# KINZBACH

# BIG BUYERS OF EQUIPMENT FOR THE ILLINOIS BASIN

## *buy most of their equipment in Tulsa!*

Now drilling more than 300 new wells, the Illinois Basin is the world's most active drilling area.

Major oil companies and drilling companies, with main offices or division offices in Tulsa, have led in the development of the Illinois Basin and are numbered among its largest buyers of equipment.

The fact that these companies are directing their Illinois operations from Tulsa offices, explains why they are purchasing, in Tulsa, a substantial part of their equipment for use in the Basin.

It is estimated roughly that 80% of all equipment and supplies used in the Illinois Basin by Tulsa companies, is being purchased in this city!

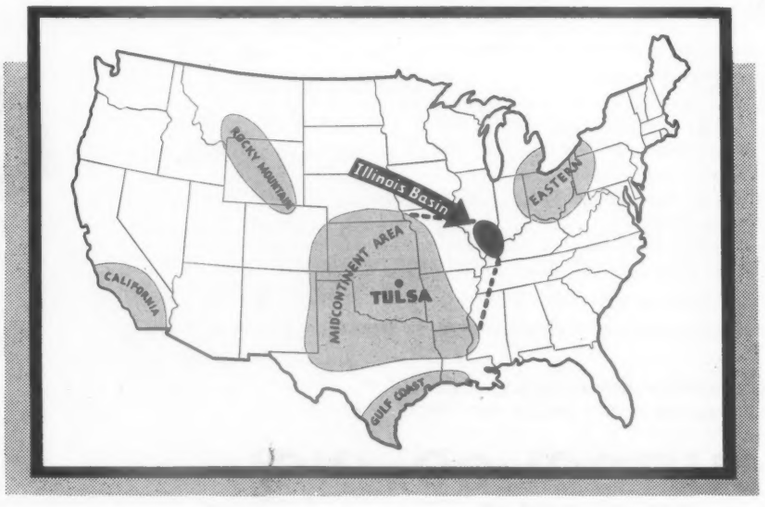
The oil-equipment manufacturers and supply companies, which are already located in Tulsa, naturally are getting the majority of this business. They are "in on the ground floor" and therefore are able to maintain personal sales contact with local buyers.

Approximately $20,000,000 has been spent for drilling and equipping wells in the Illinois Basin within the last two years. The completion of four new refineries and several major pipe line systems, plans for other large developments, and the present leasing campaign which will probably run for two more years—are factors which assure vigorous activity for many years to come.

You will be in a stronger position to get your share of business in this growing market, by establishing your sales office, factory or warehouse *in Tulsa*—the purchasing headquarters for some of the largest operators in the Illinois Basin. For more information about the equipment market in Tulsa, write the Oil Activities Department of the Tulsa Chamber of Commerce.

Tulsa's proximity to the Illinois Basin is demonstrated by the fact that most field points are only 2 to 3 hours from Tulsa by private airplane; 10 to 14 hours by auto.

52 Tulsa oil companies, drilling contractors and pipe line companies are operating in the Basin. Most of these firms maintain operating and purchasing headquarters in Tulsa.

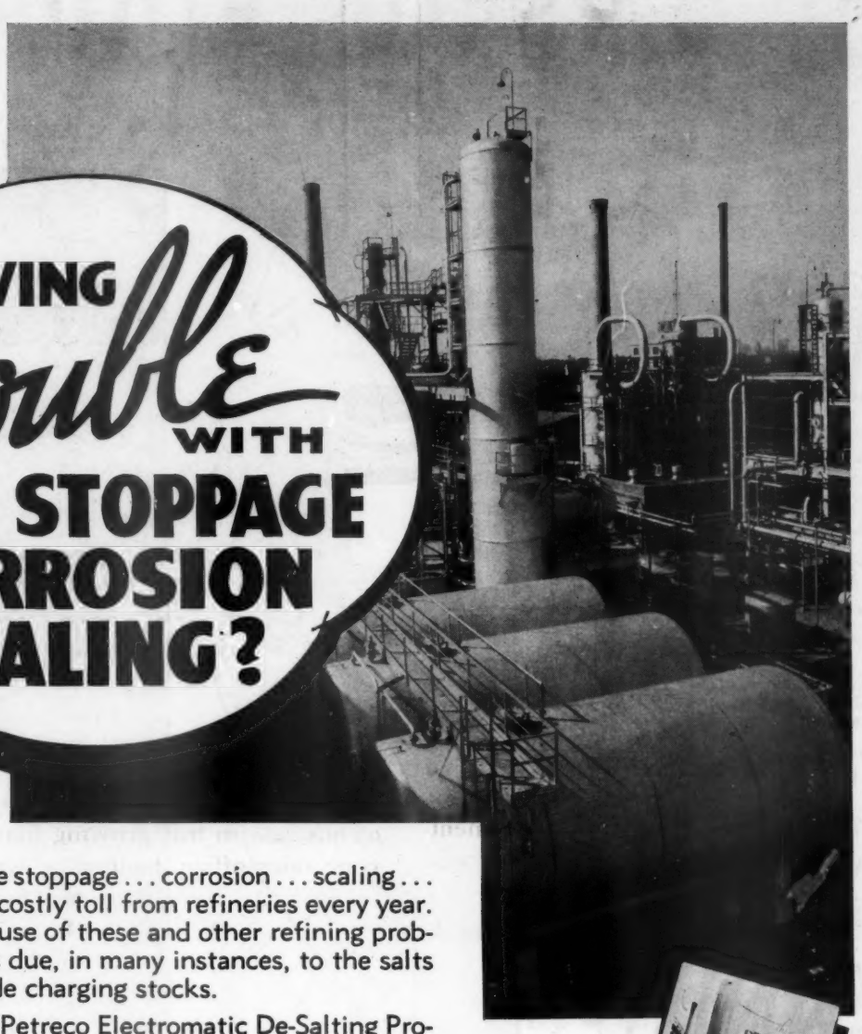



Map shows the proximity of Tulsa to the Illinois Basin, which enables Tulsa manufacturers to ship equipment to that area at a lower cost than can those manufacturers which are located in more distant oil cities.

Map also shows Tulsa's central location with respect to *all* of the nation's oil fields.

# TULSA

## *Oil Capital of the World*



# HAVING *trouble* WITH TUBE STOPPAGE CORROSION SCALING?

Tube stoppage . . . corrosion . . . scaling . . . take a costly toll from refineries every year. The cause of these and other refining problems is due, in many instances, to the salts in crude charging stocks.

The Petreco Electromatic De-Salting Process has been helpful to numerous refiners in overcoming these difficulties *efficiently, economically* and *permanently*. Petreco engineers are at your service . . . ready to render preliminary analyses and recommendations without the slightest obligation. For complete information mail the convenient coupon below.

**PETROLEUM RECTIFYING COMPANY OF CALIFORNIA**
**General Offices: 530 West Sixth Street, Los Angeles, California**
**Branch Offices: Houston, Texas**
**Representatives in Principal Oil Fields and Refining Centers**

**PETRECO**
*Electromatic* **DE-SALTING**

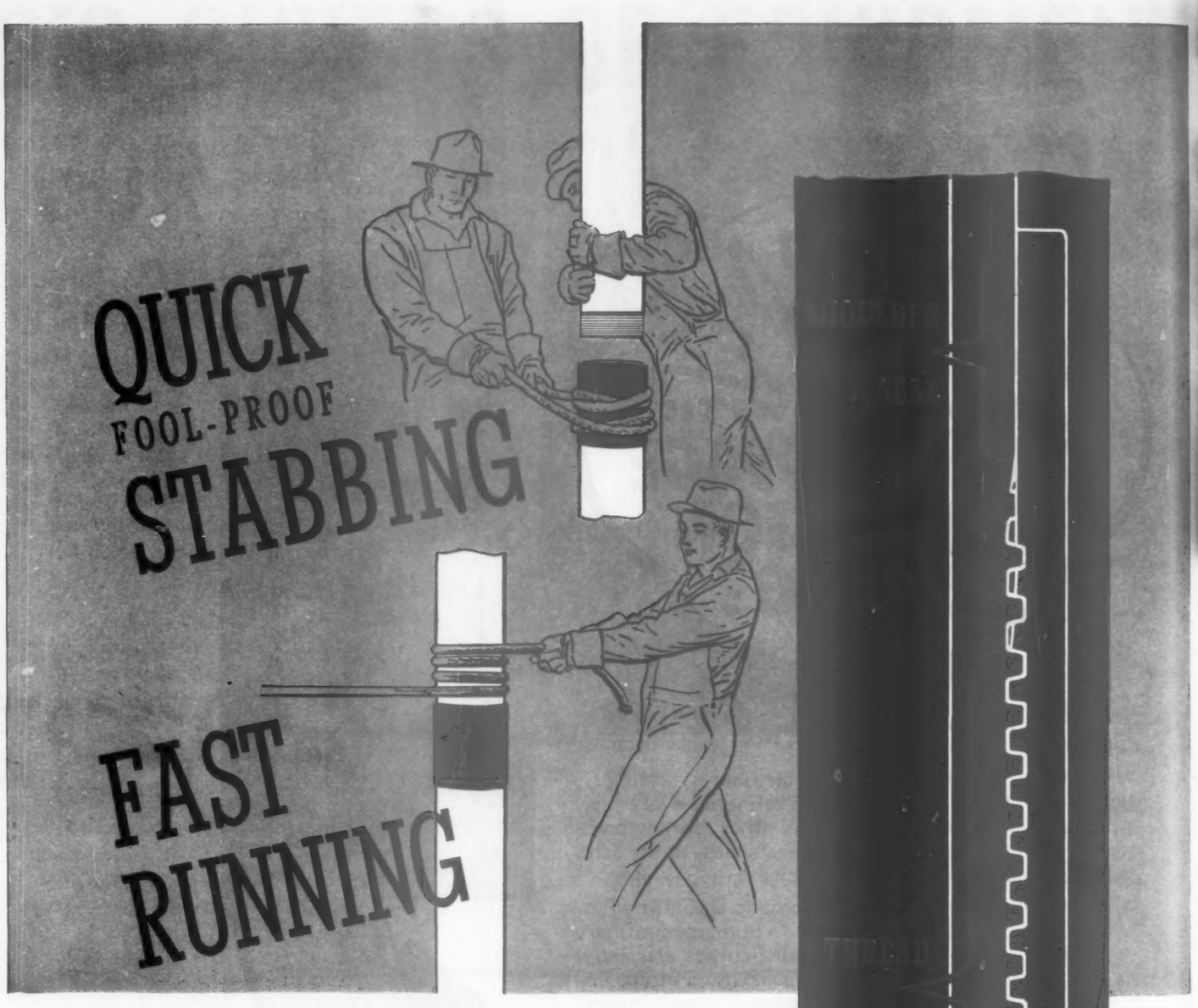
*"Eliminates The Trouble By Removing The Cause"*

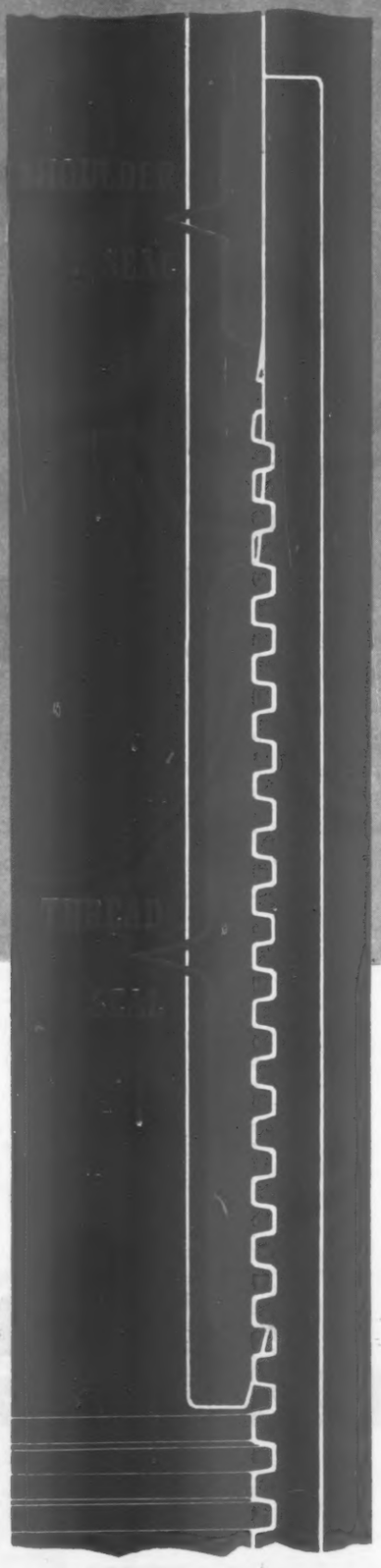
Mail This Coupon

**PETROLEUM RECTIFYING COMPANY OF CALIFORNIA**
**530 West Sixth Street • Los Angeles, California**

Please send further information relative to your Petreco Electromatic De-Salting Process for the prevention of tube stoppage, corrosion and scaling of refining equipment

NAME _____
COMPANY _____
STREET _____
CITY _____ STATE _____



PITTSBURGH SPECIAL CASING *stabs quicker* because threads mate quickly and safely. Threads do not cross in stabbing, and assembly is practically fool-proof. ● Joints on this casing can be *run faster* because fewer turns are required for make-up—an inherent advantage of the modified Acme threads . . . six to the inch. (In a recent "record" run, spinning-in time was reduced to almost half that required for ordinary casing.) ● *Other Advantages:* (1) thin-wall alloy-steel coupling; (2) greater joint strength; (3) the only Casing Joint with an effective shoulder seal. ● Full data upon request.

PITTSBURGH STEEL COMPANY · PITTSBURGH, PA.

NEW YORK CLEVELAND DETROIT CHICAGO
MEMPHIS TULSA HOUSTON LOS ANGELES

*Pipe Storage Yards:* Memphis, Tenn. . . . . Houston, Texas . . . . . E. San Pedro, Calif.

*Export Distributor:* Lucey Export Corporation, New York, N. Y., U. S. A.

**Pittsburgh** **Special CASING**
....with the FAST-RUNNING DOUBLE-SEAL JOINT....
PATENT No. 1,942,518

THERE IS NOTHING EQUAL TO SEAMLESS

# Phosphoric pickling process *protects steel tank plates!*

A NEW phosphoric pickling process has been used during the past few years with marked success to protect steel tanks against corrosion. It removes the mill scale from the steel and leaves a thin coating of iron phosphate which forms a good bond between the metal and the paint.

When this process is employed, the steel is pickled after fabrication. The plates are placed first in a warm sulphuric acid solution which removes the mill scale, then washed and dipped into a phosphoric acid solution. Upon being removed from this last bath, all surfaces except the overlapping edges are given a coating of special paint while still warm. This assures the paint being applied to a thoroughly clean surface. Also the temperature of the metal speeds the drying process. After erection in the field, the final coats of paint are applied immediately.

The pickling of steel tanks by the phosphoric process has been used extensively on tanks for erection at foreign locations. The fabricated material is clean and easy to handle. The shop coat protects the metal while in transit and facilitates the painting of the tank as soon as the erection is completed. Subsequent painting and maintenance costs are also reported to be lower.

### *Facilities for Pickling at Greenville Plant*

We have complete facilities for pickling tank material by the phosphoric method at our Greenville, Pennsylvania plant. In the above illustrations, the lower right hand view shows a close-up of the pickling plant which consists of three vats located side by side. The left hand view shows a plate being removed from the phosphoric acid bath by an overhead crane and a group of pickled plates in drying racks in foreground.

We will be glad to quote you our price on the pickling of tanks for export locations or for erection at domestic locations served from our Greenville, Pennsylvania, plant. Write our nearest office for complete information on this new process.

## CHICAGO BRIDGE & IRON COMPANY

| | | | | | |
|---|---|---|---|---|---|
| Dallas | 1441 Liberty Bank Building | Chicago | 2128 Old Colony Building | Philadelphia | 1615-1700 Walnut Street Building |
| Houston | 2919 Main Street | Detroit | 1514 Lafayette Building | Boston | 1517 Consolidated Gas Building |
| Tulsa | 1606 Hunt Bldg. | Cleveland | 2204 Rockefeller Building | San Francisco | 1054 Rialto Building |
| Birmingham | 1536 North Fiftieth Street | New York | 3347-165 Broadway Building | Los Angeles | 1423 Wm. Fox Building |

*FABRICATING PLANTS in Birmingham, Chicago, and Greenville, Pa.*

# "TIMKEN"

TRADE-MARK REG. U. S. PAT. OFF.

## A TRADE-MARK THAT IS KNOWN WHEREVER CIVILIZATION EXISTS

**TIMKEN**
TAPERED ROLLER BEARINGS

**TIMKEN**
RAILWAY ROLLER BEARINGS

**TIMKEN**
ALLOY STEELS

**TIMKEN**
SEAMLESS STEEL TUBES

**TIMKEN**
ROCK BITS

**TIMKEN**
FUEL INJECTION EQUIPMENT

"TIMKEN" is the identifying trade-mark of one of the world's largest and most famous engineering-manufacturing institutions and of the growing family of quality products which this organization manufactures.

The history of The Timken Roller Bearing Company covers more than 40 years of continuous engineering development and experience. It began when the automotive industry was in its infancy. At that time the TIMKEN Tapered Roller Bearing started its spectacular climb to the leadership it enjoys today—not only in automobiles and motor trucks, but in railroad cars, locomotives, streamlined trains and all kinds of industrial equipment.

The TIMKEN Bearing was the first successful tapered roller bearing. Its increasing reputation through the years has been due to scientific engineering, extreme precision of manufacturing and the development of TIMKEN Electric Furnace Alloy Steel. Thus, TIMKEN Steel and TIMKEN Seamless Steel Tubing became respectively the second and third members of the family of TIMKEN Products. They are now equally well-known in their own particular fields, and are available in all standard and many special analyses.

More recently TIMKEN Rock Bits and TIMKEN Fuel Injection Equipment were added to the group. TIMKEN Bits already have gained an outstanding reputation among rock bit users. TIMKEN Fuel Injection Equipment is well on the way to attaining a similar position among manufacturers and users of fuel oil burning engines. When buying any of these products it will pay you to look for the trade-mark "TIMKEN". It is a sure guide to satisfaction.

**THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO**

# MOLDED

## *to do*

# A PARTICULAR JOB!

Opening a new avenue of efficiency for oil field equipment builders and economy for oil operators, U. S. Rubber technicians have developed molded and specialty rubber parts that are important factors in latest oil field equipment. Combining engineering skill with rigid testing and high standards of workmanship, our specialists, in the field and laboratory, enable manufacturers to improve their equipment... Equipment that becomes more efficient and more economical... Equipment that avoids frequent parts replacements.

Offering "Service Beyond Price and Specifications" on molded rubber and specialty items... as on other mechanical rubber goods... U. S. Rubber will gladly cooperate with you in determining specifications best suited for your product and its application. Communicate with our nearest Branch or write United States Rubber Products, Inc., 1790 Broadway, New York, N.Y.

UNITED STATES RUBBER COMPANY · US · TRADE MARK

**United States Rubber Company**

United States Rubber Products, Inc., New York, N. Y.

Battery of most modern presses, employed by U.S. Rubber in producing precision molded items for every purpose.

VAN S

SCREWED AND WELDED FLANGE

SLIP-ON FLANGE
WELDED FRONT AND BACK

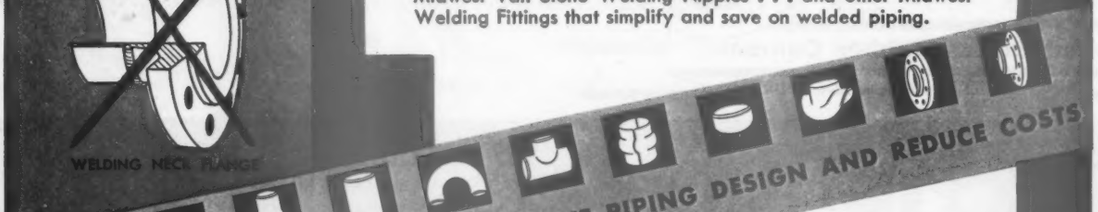
WELDING NECK FLANGE

WEST
WELDING NIPPLE
makes the
*ideal*
flanged joint
for welded
piping
systems

For making connections to boilers, pumps, valves and other flanged outlets (and where piping must be frequently cleaned or inspected for corrosion), Midwest Van Stone Welding Nipples have a tremendous advantage over flanges that are welded to the pipe (see drawings at left). The swivel flange of the Nipple makes it unnecessary to accurately line up the bolt holes before welding; "setting up" is simple and quick because no special clamps or jigs are required to hold the face of the flange absolutely perpendicular to the axis of the pipe. The result is a real saving in time and cost of welding.

Another important economy is in erection. Field organizations report a saving of 25% in erection time for making up a joint using Midwest Van Stone Welding Nipple in comparison with flanges rigidly fixed to the pipe; this saving is even greater when the flanges are on bends.

Ask for Bulletin WF-36 which gives complete data regarding Midwest Van Stone Welding Nipples . . . and other Midwest Welding Fittings that simplify and save on welded piping.




MIDWEST

**MIDWEST**
**PIPING & SUPPLY COMPANY, Inc.**

Main Office: 1450 So. Second St., St. Louis, Mo.

Plants: St. Louis, Passaic (N. J.) and Los Angeles • Sales Offices: Chicago—946 Marquette Bldg. • Houston—1716 Second National Bank Bldg. • Los Angeles—520 Anderson St. • New York—(Eastern Division) 30 Church St. Tulsa—533 Mayo Bldg.

Leadership

XVG

COMPRESSORS

(Gas Engine Driven)

# SERVING THE OIL INDUSTRY

**XVG Compressors are widely used by the Oil Industry for Gas Lift, Repressuring, Gasoline Plants, Gas Gathering, Pipe Line Transmission, Gas Recovery, Refinery Gas Compression, Ammonia Refrigeration, Propane Refrigeration, Ethylene Compression, Butane Compression, Hydrogenation and many other applications.**

**Whatever the compression problem, there is an XVG to do the job with compressor cylinders properly designed for the particular pressure requirements and made of materials best suited for the service.**

**Ask for Bulletin 3165 and let our local representatives and engineers serve you.**

***Other Ingersoll-Rand products for the oil industry include electric-, steam- and diesel-engine-driven compressors, portable compressors, many varieties of pumps, rock drills, impact wrenches, pneumatic tools, etc.***

Atlanta
Birmingham
Boston
Buffalo
Butte
Chicago
Cincinnati
Cleveland
Dallas
Denver
Detroit
Duluth
El Paso
Hartford
Houston
Kansas City

**Ingersoll-Rand**

11 BROADWAY, NEW YORK CITY 682-10

Knoxville
Los Angeles
Newark
New York
Philadelphia
Picher
Pittsburgh
Pottsville
Salt Lake City
San Francisco
Scranton
Seattle
St. Louis
Tulsa
Washington

CUMMINS DIESEL

"Job-test Evidence"

. . . IS YOUR PROTECTION

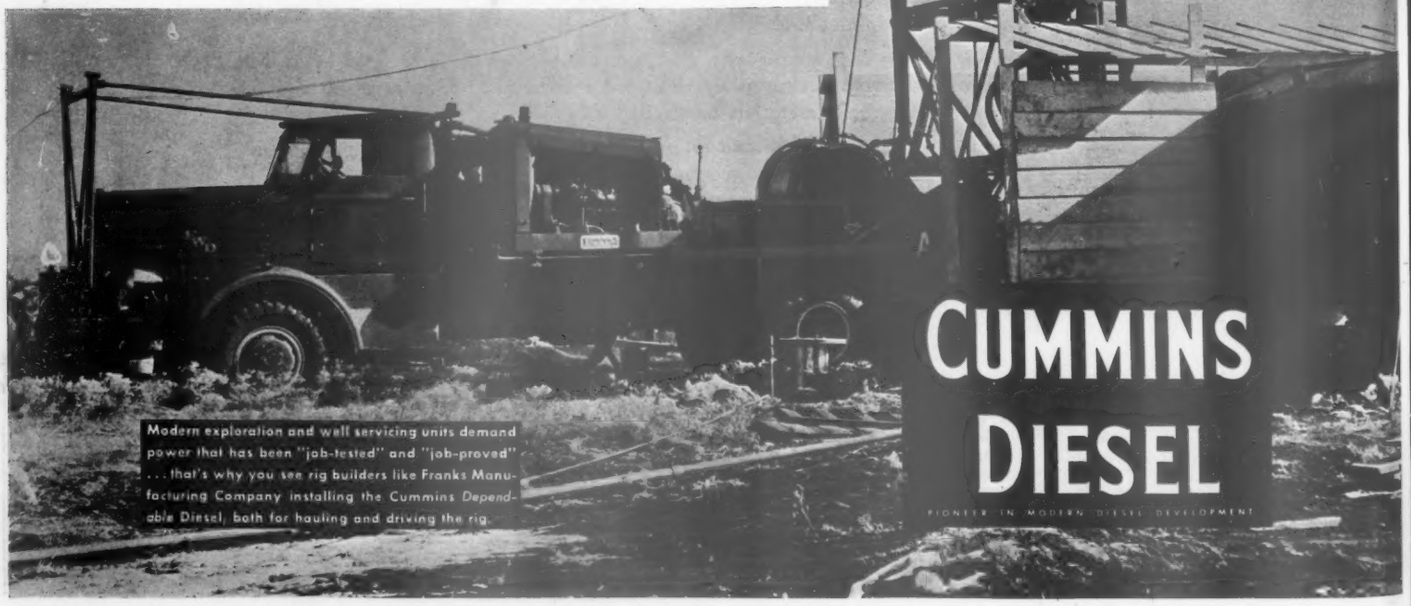
Explorative drilling eliminates guesswork in new or unproved fields—the Cummins Diesel "job-test evidence" eliminates guesswork in buying a diesel for drilling, pumping or generating.

Cummins Diesel "job-test evidence" is constantly being verified by drilling contractors who now own approximately 50,000 hp. of Cummins *Dependable* Diesels . . . Cummins Engine Co., 1412 Wilson St., Columbus, Ind.

MID-CONTINENT SUPPLY COMPANY

*Exclusive Distributors Mid-Continent Territory*

MAIN OFFICE: FORT WORTH, TEXAS



Modern exploration and well servicing units demand power that has been "job-tested" and "job-proved" . . . that's why you see rig builders like Franks Manufacturing Company installing the Cummins *Dependable* Diesel, both for hauling and driving the rig.

CUMMINS DIESEL

PIONEER IN MODERN DIESEL DEVELOPMENT

GOODALL was making rotary hose in 1908 . . . good hose, too, for the requirements of that day. And, in that span of 30 years, Goodall has made rotary hose history with continued improvements, not only in step but ahead of normal progress in drilling methods. And so today Goodall enjoys world-wide recognition for the top product in its line . . . the Goodall Long Life Rotary Hose and Barney Coupling combination, which operators call "their way out of rotary hose grief."

The Barney Coupling, which eliminates clamps and stems (removing all metal from the bore of the hose), does away with the principal cutting agent commonly resulting in hose wear. It has done away with high pressure leaks, an all-time evil of rotary drilling. It has made the already superior Long Life Rotary Hose a better unit than ever. It has made it the pick of the field. For full details address GOODALL RUBBER COMPANY, 1606 Maury Street, Houston, Texas. Branches at Philadelphia, New York, Pittsburgh, Chicago, Cleveland. Mills at Trenton, N. J. GOODALL MECHANICAL CORP., Los Angeles. Branches at San Francisco, Seattle.

GOODALL LONG LIFE ROTARY HOSE

# EXTRA POWER FOR DEEPER WELLS

*After completing one well at 8700 ft., the Coon & Gracey Drilling Co. are 4500 ft. down on a second well—with these two 325 hp. LRH Waukesha-Hesselman Oil Engines on an Emsco draw works with a Portable Rig Company hook-up—in the marshes near Sabine Pass, Texas.*

*Model 6-LRHU Waukesha-Hesselman Oil Engine—190 to 325 hp., six cylinders, 8½ in. x 8½ in. bore and stroke, 2894 cu. in. displacement.*

## WITH WAUKESHA-HESSELMAN OIL ENGINES

**IN THE CENTRALIA (Illinois) FIELD** *more than a dozen Waukesha-Hesselman Oil Engines are now in operation on* **National, Wilson, Portable** *and other equally well-known rigs.*

**On drilling operations in all fields, these low pressure, spark ignition engines are setting records for** *the greatest over-all economy.*

**With none of the Diesel's high pressure disadvantages, the Hesselman Oil Engine has all the** *proved performance advantages* **of low pressure gasoline engines.**

**Although it's a diesel oil engine,** *not a single internal change* **is needed to convert a Hesselman** *for gas fuel.* **An hour's work does it! And changing back to burn oil is equally simple and nearly as quick.**

**A Waukesha-Hesselman Oil Engine takes its fuel as it finds it—burning domestic furnace oils or modern, high speed diesel oils with equal facility. The spark ignition times explosions exactly . . . pressures never get out of hand . . . lazy burning fuel oils are handled as surely and smoothly as the special diesel fuels.**

**With pressures no higher than those of a gasoline engine, there's no excessive stress or strain on the engine itself . . . no mechanical troubles . . . upkeep is lower . . . engine life is longer.**

*You'll want the details . . . write for new Bulletin 1000.*

**WAUKESHA MOTOR COMPANY, WAUKESHA, WIS.**
**NEW YORK • TULSA • LOS ANGELES**

## FOR THE GREATEST OVER-ALL ECONOMY

# SALEM'S WITCHES RIDE AGAIN

If oil wells had existed in 1638 and if the things that are done in wells today had been done then, they would have been set down as the wildest exhibits of supernatural witchcraft.

In the oil fields that exist in 1938, the things that are done today are accepted as commonplace—as the results of bold calculations—of courageous experiments and of cold-blooded proofs.

In the deep wells of the west and south, Lane-Wells Gun Perforating and Oil Well surveys—marvelous when introduced—are now old stories.

Gun Perforating was, at the outset, the science of shooting clean holes through one or more strings of casing and the adjacent cement—making as many holes as were wanted throughout the entire range of the logged formation. In addition to this, eleven other profitable uses have since been found, from perforating blank liners to preparing for acid treatment. Within the past six years, 16,457 wells have been gun perforated in the United States.

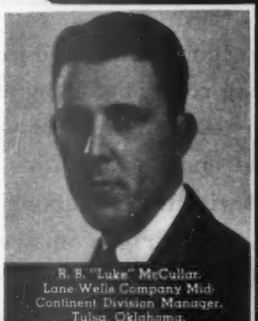
Lane-Wells oil well surveys give visible photographic records of degrees, directions and depths of a well's departure from vertical, and provide a dependable guide to corrective or directional drilling if necessary.

Lane-Wells Packers are made in ten types for thirteen essential sub-surface operations. They have been used in the major oil fields of the world for years. Lane-Wells Packers are conserving reservoir energy and are making many Illinois wells flowing wells that would otherwise be pumped.

In the oil fields of Illinois, Indiana and Kentucky, these services and products are as necessary for economical drilling and profitable production as they have already been in other oil producing states. This is proved by the fact that they have been demanded by informed producers ever since the revival of operations in the Illinois field.

Many other products and services that have been developed through intimate knowledge of and daily contacts with old field production in every important area are offered by Lane-Wells experts, with complete facilities for prompt action from Salem. Fully manned and fully equipped trucks are ready to render scientific services and prompt deliveries—night or day—on short notice—at any well in the Illinois field.

***Illinois District Office***
**105 South Jefferson Street**
**Salem**
**Telephone 861**



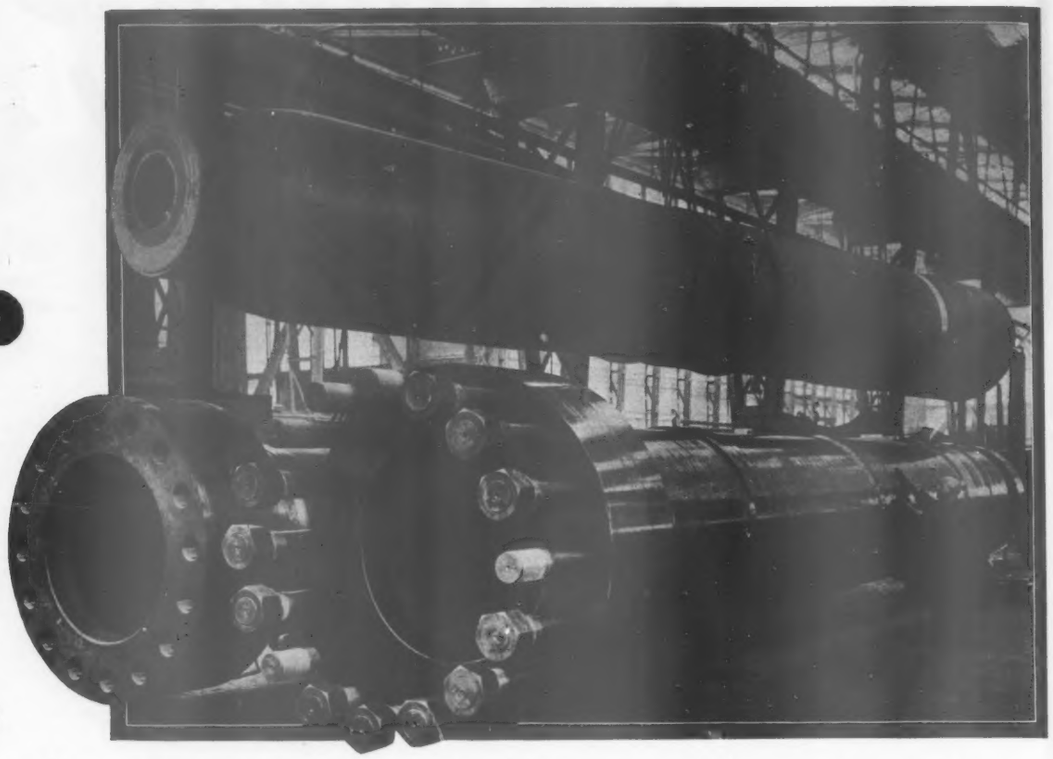
R. B. "Luke" McCullar, Lane-Wells Company Mid-Continent Division Manager, Tulsa, Oklahoma.

G. B. Davis, Lane-Wells District Superintendent, Salem, Illinois.

TECHNICAL OILFIELD SERVICES

*Tomorrow's Tools Today*

KRUPP



Seamless Hollow-Forged

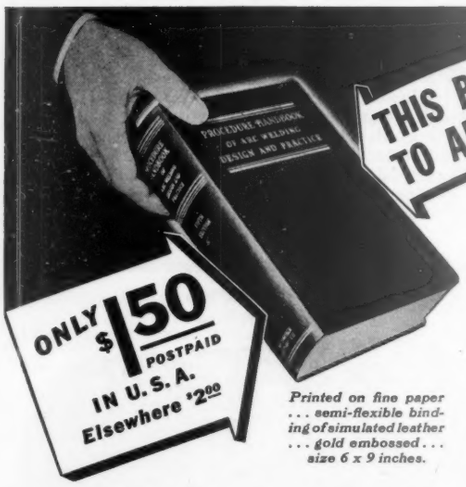
# Reaction Chambers

and other Pressure Vessels for Cracking and Hydrogenation of Oils, Coal, Tars etc. working at the highest pressures and temperatures, made in Siemens-Martin Carbon Steel or Alloy Steels of an especially high resistance to chemical attacks.

For Piping and Fittings for Cracking and Hydrogenation Plants we recommend our special Alloy Steels preventing Surface Scaling at 800° C and particularly resisting to Hydrogen Attacks and the effects of High Temperatures.

1795b

**Fried. Krupp Aktiengesellschaft, Essen (Germany)**




*Printed on fine paper . . . semi-flexible binding of simulated leather . . . gold embossed . . . size 6 x 9 inches.*

## THIS BIG NEW BOOK GUIDES YOU TO ADVANCEMENT AND PROFIT

## PROCEDURE HANDBOOK OF ARC WELDING DESIGN AND PRACTICE

MANUFACTURING executives, engineers, designers, production supervisors, architects, contractors, welding operators, technical schools and colleges the world over recognize the Procedure Handbook and use it regularly as the authoritative reference guide on all phases of arc welding.

**1012 Pages • 1243 Illustrations**

The big new Fifth Edition Procedure Handbook gives you valuable, up-to-date information that will enable you to improve your position and increase your earning power by taking advantage of the opportunities of welded design and application. This complete, authoritative Handbook gives you quickly the *right* answers to problems in the development, production and utilization of steel products. It stops risky guess work and prevents costly errors. It is one of the wisest investments you can make for your future welfare. Order your copy today.

***The Fifth Edition Handbook, with 193 More Pages and 253 More Illustrations than the previous edition, contains New Data and Ideas on:***

- Welding Methods and Equipment
- Technique of Welding
- Procedures, Speeds, Costs
- Structures and Properties of Weld Metals
- Weldability of Metals
- Machine Design
- Structural Design
- Manufacturing, Maintenance and Construction in All Fields

***MAIL YOUR ORDER AND CHECK TO***

**THE OIL AND GAS JOURNAL**

**TULSA, OKLAHOMA**

# Let this NON-ROTATING Wire Line by Gilmore introduce you to a more satisfactory and longer service on your Rotary Rigs

—not only that—but it acts equally better in cable tool service.

As you know this has often heretofore been a difficult line to handle but we have licked the difficulty out of it and now you will get performance of an unusually satisfactory nature out of it.

We want to prove to you that Gilmore precision lines are the lines you will be glad to use.

Let us supply you with your next replacement.

**GILMORE**
**WIRE ROPE DIVISION**
MUNCY · PENNSYLVANIA
**JONES & LAUGHLIN STEEL CORPORATION**
PITTSBURGH PENNSYLVANIA

Other J & L Steel products:

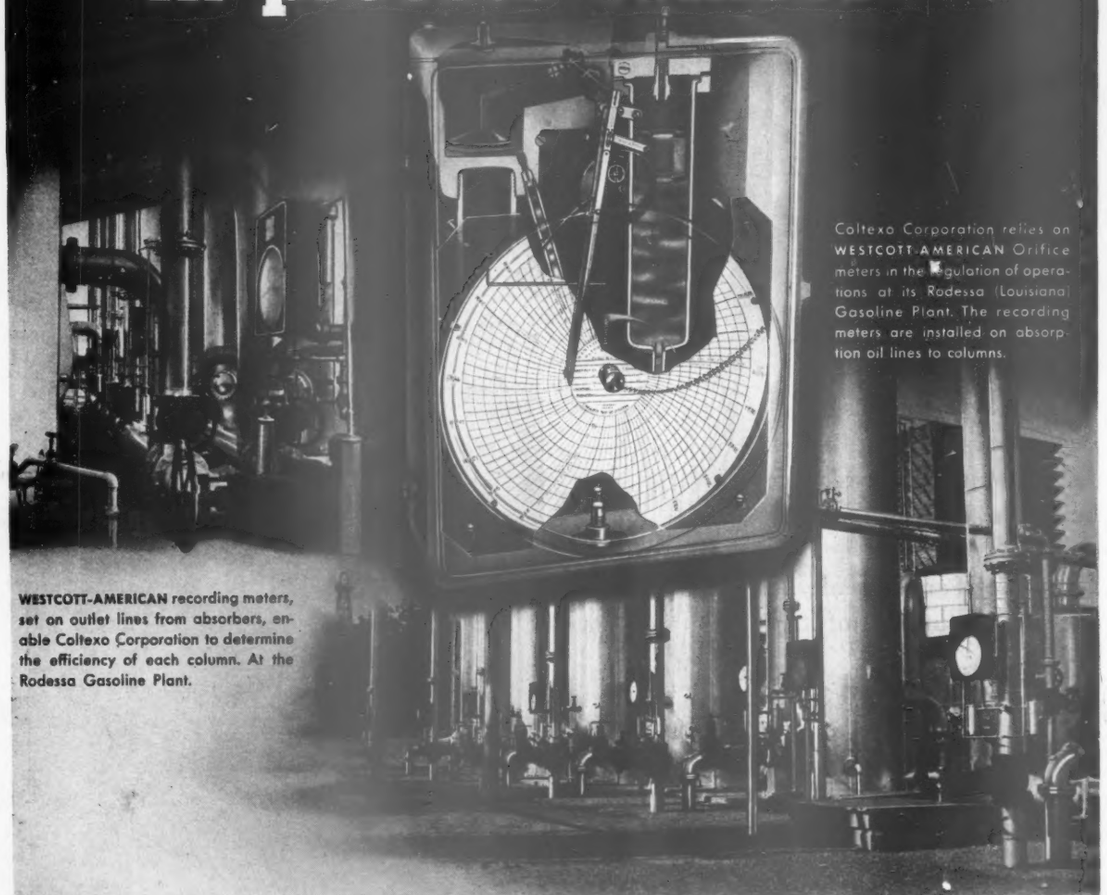
J & L A.P.I. Casing, Tubing, Drive Pipe and Line Pipe in seamless and welded—J & L A.P.I. Seamless Drill Pipe—J & L Integral-Joint Drill Pipe—J & L Bell and Spigot Casing—J & L Seamless Boiler Tubes—J & L Standard Pipe in seamless and welded—Steel products for construction and maintenance.

J&L STEEL

**FRICK-REID SUPPLY CORPORATION, Distributors**
**PITTSBURGH — TULSA Branches in Old and New Fields**

*Measurement engineering*

# in process control . . .



Coltexo Corporation relies on WESTCOTT-AMERICAN Orifice meters in the regulation of operations at its Rodessa (Louisiana) Gasoline Plant. The recording meters are installed on absorption oil lines to columns.

WESTCOTT-AMERICAN recording meters, set on outlet lines from absorbers, enable Coltexo Corporation to determine the efficiency of each column. At the Rodessa Gasoline Plant.

● Each meter application in the Oil and Gas fields, has its own peculiar demands upon measurement engineering and technology. Take for example, the metering of heavy, viscous oil or of gasoline.

It is the scrupulous regard for meter accuracy . . . under every field operating condition . . . that has established a world-wide reputation for the WESTCOTT-AMERICAN trade name. Complete descriptive and technical literature available for Indicating, Recording, and Integrating meter installations.

ESTABLISHED 1836

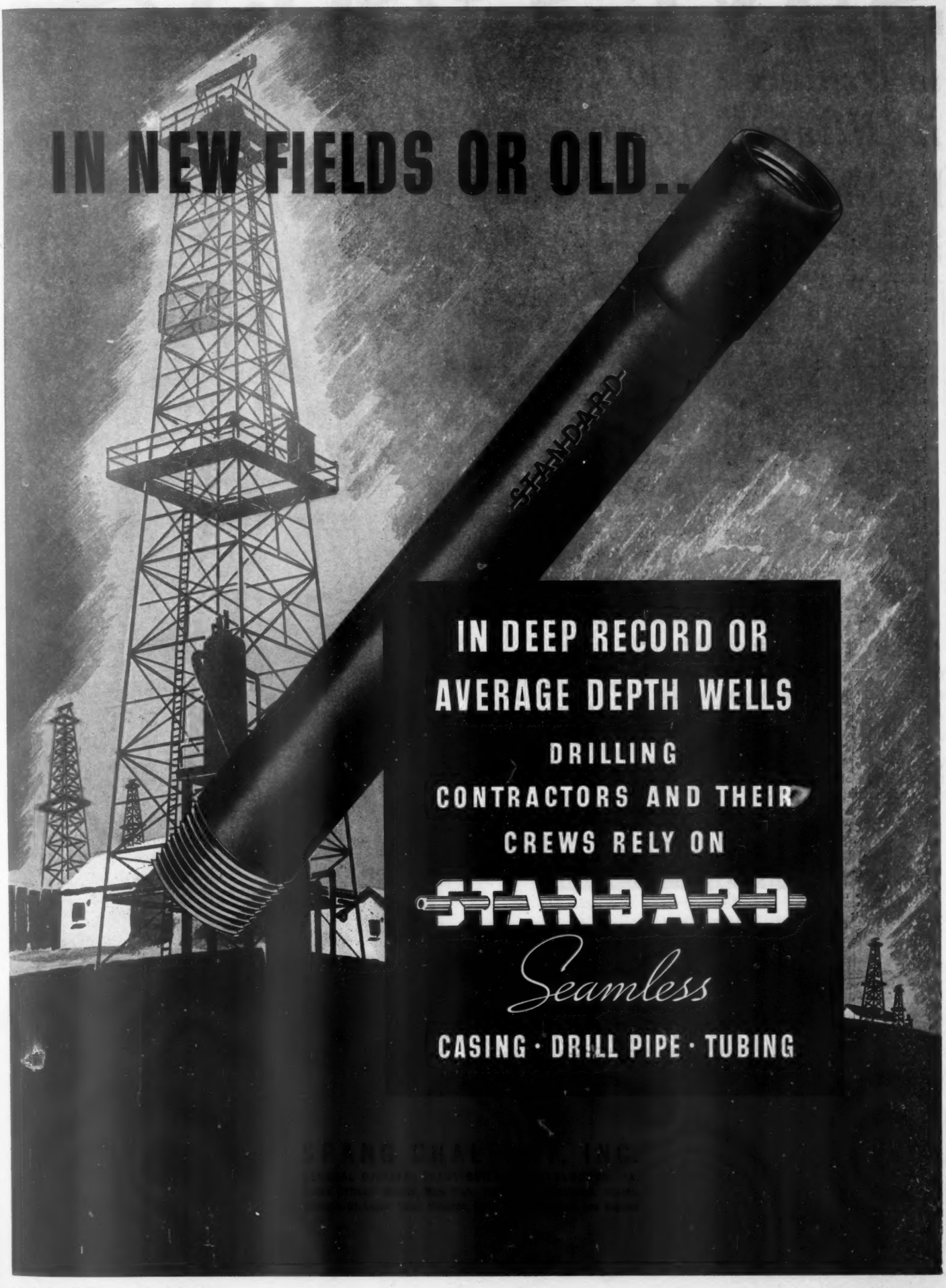
AMERICAN METER COMPANY

INCORPORATED

*Measurement and control of Gas, Oil, Steam, Air and Liquids*

METRIC METAL WORKS *ERIE, PENNSYLVANIA*

887


IN NEW FIELDS OR OLD..
S-T-A-N-D-A-R-D
IN DEEP RECORD OR
AVERAGE DEPTH WELLS
DRILLING
CONTRACTORS AND THEIR
CREWS RELY ON
STANDARD
Seamless
CASING · DRILL PIPE · TUBING

# SAVES $803.84

## *in Drilling 1,700 ft. Well in Illinois Basin with*

## FRANKS Portable Rotary

**Average year around cost comparison between a skid rotary rig requiring a derrick against a FRANKS Model 3000-A, truck mounted rotary rig with derrick on a 1700' well in the Illinois basin.**

### WHERE SAVINGS EFFECTED

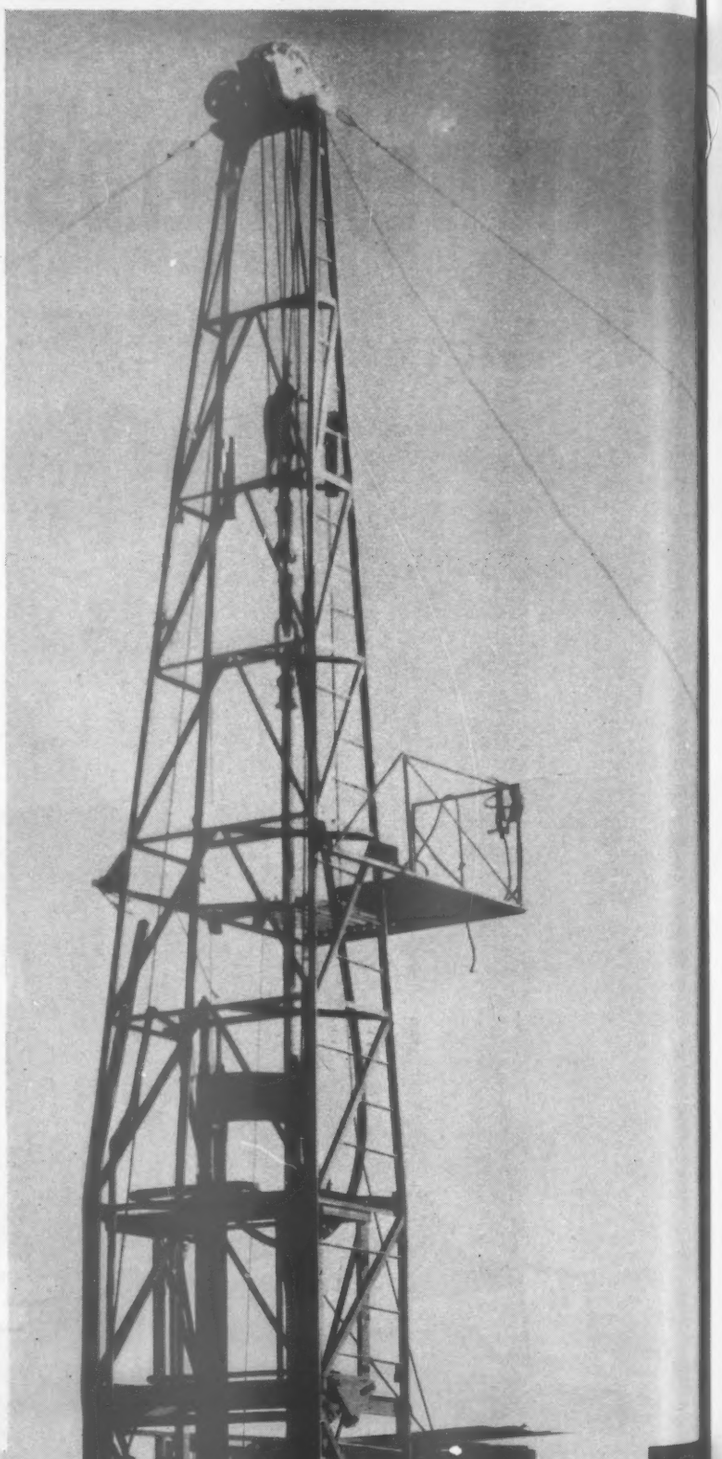
| | SKID ROTARY | FRANKS PORTABLE ROTARY | SAVINGS WITH FRANKS UNIT |
|---|---|---|---|
| Pits | $ 50.00 | $ 50.00 | |
| Labor | 902.40 | 780.00 | $201.60 |
| Water | 125.00 | 125.00 | |
| Fuel | 72.00 | 72.00 | |
| Oils and Greases | 24.00 | 24.00 | |
| Erection, tearing down and moving | 450.00 | 50.00 | 400.00 |
| Trucking | 250.00 | 150.00 | 100.00 |
| Rigging up | 72.00 | | 72.00 |
| Depreciation of unit | 338.00 | 338.00 | |
| Drill Pipe depreciation | 191.00 | 191.00 | |
| Overhead | 120.00 | 120.00 | |
| Cordage, supplies and repairs | 320.00 | 320.00 | |
| Bits, cutter heads and reamers | 475.00 | 475.00 | |
| Mud | 75.00 | 75.00 | |
| Surface pipe cementing | 110.00 | 110.00 | |
| Insurance, compensation, etc. | 135.36 | 105.12 | 30.24 |
| | $3,709.76 | $2,905.92 | $803.84 SAVINGS |

### FRANKS PORTABLE ROTARY

**Will Cut 8¾" hole to 2,500 ft. with 4" drill pipe.**
**Will Cut 7½" hole to 3,000 ft. with 3½" drill pipe.**
**Will Cut 6¾" hole to 3,500 ft. with 3½" drill pipe.**
**Will Cut 6¼" hole to 4,000 ft. with 2⅞" drill pipe.**

**Write for complete information on Franks Models 1000 to 5000 Portable Rotaries for exploratory and production drilling from 1,000 to 6,000 ft.**

*Franks Model 3000-A 100% Portable Rotary drilling unit on location in Illinois basin. Complete with derrick, draw works, power plant, pumps, rotary table. Furnished for Butane, gasoline, gas, or Diesel operation.*



FRANKS MFG. CORP.
WELL SERVICING AND DRILLING UNITS

**Tulsa** **P. O. Box 137** **Whittier Sta.**

**Export Office: 149 Broadway, New York**

*REPRESENTATIVES:*

**Illinois Basin: Fred S. Dewel, 715 Jordan St., Mt. Vernon, Ill.**
**Texas: R. M. White, 2236 West Magnolia, Fort Worth, Texas.**
**Kansas, Wyoming and Montana: Chas. E. Anderson, 104 N. Poplar, Hutchinson, Kans.**

## TWO GREAT OIL COUNTRY NAMES TEAM UP

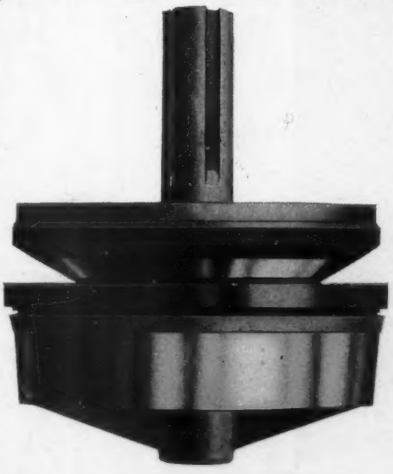
# WECO-GUMBO BUSTER

## TO BRING YOU A *GREATER SLUSH-PUMP VALVE*

Well Equipment Manufacturing Corporation and American Well & Prospecting Company, pioneer oil tool manufacturers and distributors, have teamed up to bring slush pump owners a new and better valve and valve seat. This new WECO-GUMBO BUSTER valve and seat combination has already proved its superiority to conventional valves and seats on numerous occasions.

### ONE-PIECE VALVE

The valve itself is of one-piece construction, cast from alloy steel, carburized, and accurately ground to size. There are no joints where the fluid might cut through when the valve is closed and under pressure. A small rubber insert, which is inexpensive and easily replaced, is provided to effect a positive seal when the valve closes. A guide is provided top and bottom.



### VALVE SEAT WITH PATENTED SEAL RING

The valve seat is an innovation in valve design. A patented rubber seal ring fits into a groove that encircles the seat near the top. When the seat is pressed into the pump the rubber ring is compressed to form a positive seal, and thus prevent the fluid cutting behind the valve seat.

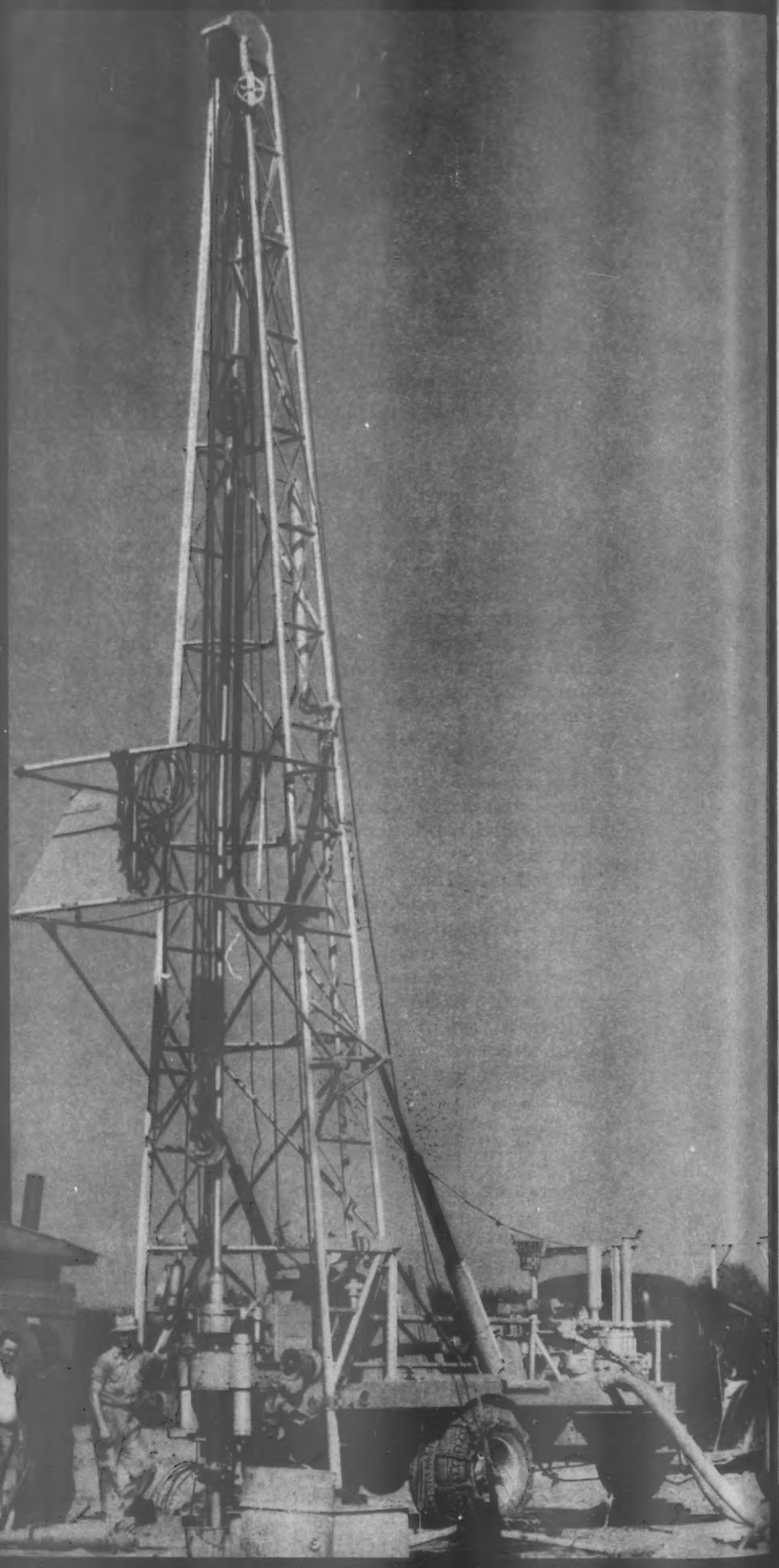
The WECO-GUMBO BUSTER valve seat positively eliminates cutting out of the fluid end. Unlike conventional slush pump valves which depend on a metal to metal seal, such imperfections as imperfect tapers in pump deck, nicks, grit, etc., do not lessen its sealing efficiency. The patented rubber seal ring flows quickly under pressure to effect a seal under such conditions.

Cast iron fluid ends, which cut out behind valve seats and would normally be thrown away, may be saved by bronzing the cut portion, grinding to approximate taper by hand, and inserting seal ring valve seat.

WELL EQUIPMENT MFG. CORP.
HOUSTON, TEXAS, U. S. A.

# Production

## in Illinois with the Failing "55"



This photo shows a Failing truck-mounted "55" drill in actual operation in the Illinois basin. For slim holes and shallow production at 1500 to 2000 feet this drill is doing the job, thoroughly and economically.

Pumping equipment may be mounted separately on skids or truck.

—If you have a drilling problem, write .....

**GEO. E. FAILING**
**SUPPLY COMPANY**

Enid, Okla. Houston, Texas

F

# "Cores Will Tell"

# SECURALOY

## GIVES ILLINOIS OPERATORS *TWO* WELLS FOR ONE!

### ANOTHER ILLUSTRATION OF THE WAY "SECURALOY" IS SAVING MONEY IN OIL FIELD OPERATIONS

In the new Illinois field production is generally obtained from two zones—the upper, known as the Weiler, and the lower, known as the Benoist.

Certain drilling requirements, coupled with the peculiarities of the formations, have heretofore made it necessary to drill a separate well to produce each formation. But, with the aid of "Securaloy," the new *drillable* metal, operators in this field are now able to meet all requirements *and produce both zones through ONE well!*

That's a saving of one complete oil well for every one drilled—another outstanding example of the way "Securaloy" equipment is making possible new money-saving development methods never before feasible.

"Securaloy" will not only save you money on development work, *but it permanently protects your oil well investment.* For example, "Securaloy" Liners and Production Equipment can be run in a well *and left there indefinitely* the same as steel. Yet, they can be quickly drilled up and circulated out of the hole whenever necessary. That feature eliminates the hazards of frozen liners . . . adds years to the producing life of your wells . . . and assures your getting the most out of every dollar you invest!

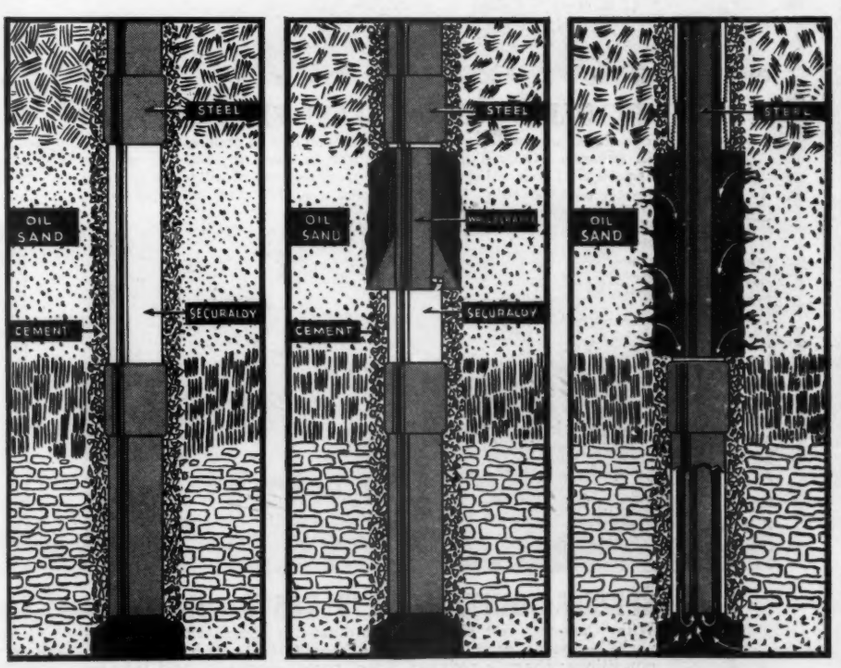
Our engineers will gladly work with you on your particular problems.

**HERE'S HOW IT IS DONE . . .**

A single string of casing made up with a section of "Securaloy" blank pipe positioned opposite the upper sand is landed just above the lower zone. In accordance with drilling requirements, the cement job is run so as to completely fill the annular space behind the casing all the way to the surface.

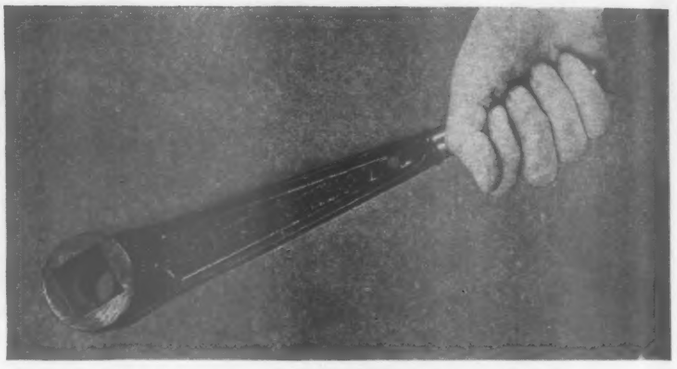
After the cement has set, the drillable "Securaloy" section and the cement sheath behind it are quickly cut away with a bit and wall scraper, thus leaving both the upper zone and lower zones completely exposed, and the remaining hole fully cased and cemented off.

Inasmuch as the upper zone usually requires a shattering with explosive to obtain maximum production, this operation is performed on the open area after the "Securaloy" and cement have been removed. Both zones are then produced in any manner desired through the common production string.



# Get True Pipe-joint

**PLAIN-END PIPE—A DRESSER ECONOMY!** You save cost of specially prepared pipe-ends when you use "Dressers." *Further economies:* pipe too thin to thread is easily used; also random or left-over lengths of pipe. No tedious matching up of (nor damage to) pipe-ends. No exact pipe lengths. Full inside diameter at joints. Safety.



**ONE SIMPLE TOOL—ANOTHER ECONOMY!**
With "Dressers," a wrench installs! That's why you need no costly, complicated jointing machinery and equipment—which not only is expensive to operate, maintain, and transport, but also depreciates and is hard to handle. Right from the outset, you economize, with "Dressers"!

**UNSKILLED LABOR—LEAST EXPENSIVE!** Labor costs on a Dresser line are low, uniform, and can be accurately estimated in advance. Only a handful of workmen (easy to obtain locally) is required. Labor turnover is less. Confinement of all work to small area—possible with "Dressers"—reduces the costs of supervision.

**FLEXIBILITY SAVES TIME & "SPECIALS"!**
Each Dresser Coupling adjusts line simply and practically to curves, contours, trench irregularities, mis- and re-alignments—up to 6° or more. *Saved,* in many cases, are costs of factory "specials," field bends, special expansion joints, exact surveying and grading, delays, etc.

**SPEEDY JOINTING CUTS COSTS—NO LAGS!**
With "Dressers," fast, clock-like, coordinated jointing—without "bottle-necks"—speeds completion of line despite bad ditch or weather conditions; sharply reduces direct costs, overhead, and interest charges. Assembly above ditch (with flexible Dressers) eliminates bell-holes, wide trenches. Construction economical from several points.

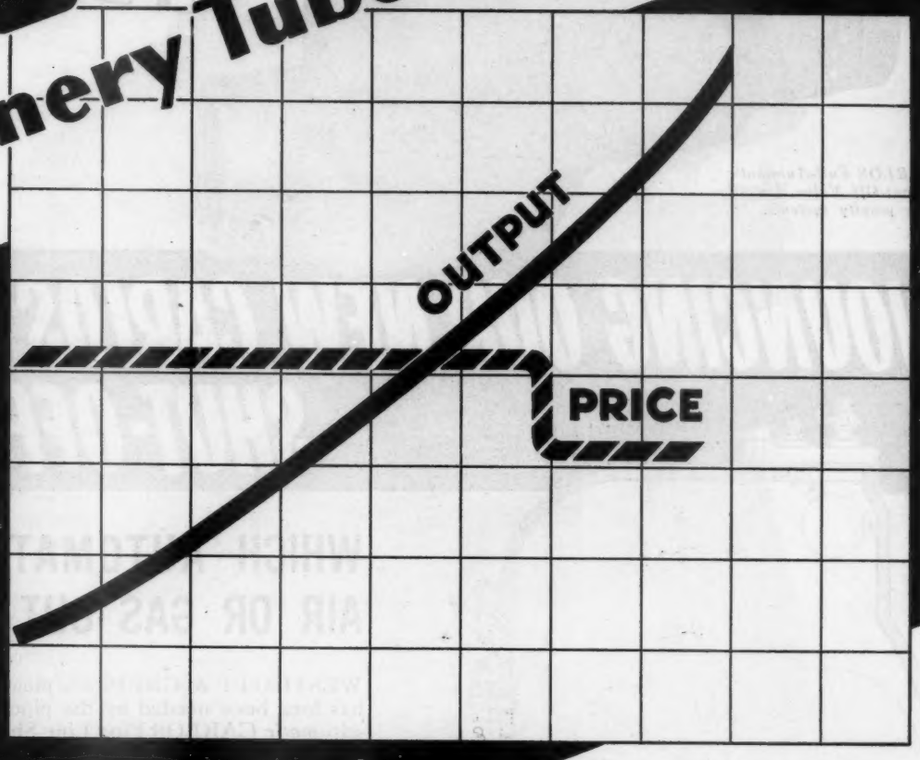
Relaying pipe-line with salvaged Dresser Couplings in Kansas

**SALVAGE STILL FURTHER REDUCES COSTS!**
Couplings in service many years may be usually dismantled and re-claimed with 100% efficiency by simply using new and interchangeable bolts and gaskets, which often represent only 25% of original cost. No cutting off of pipe-ends. Temporary lines may be repeatedly re-laid, using all same parts. This salvage greatly reduces cost *per installation.*

# B&W CROLOY 2

2% Chromium
.50% Molybdenum

## Refinery Tubes and Piping




## More Economical Than Ever

Lower prices and hence greater values than ever for this economical analysis have been made possible by high production to meet increasingly wider demands. At present prices, its high temperature-strength and resistance to corrosion and oxidation are definite bargains.

Service records and technical data on request.

THE BABCOCK & WILCOX TUBE COMPANY
BEAVER FALLS • PENNSYLVANIA

**BABCOCK & WILCOX TUBES**

T-77

*The new CARLOS Full-Automatic Pipe Line Shut-Off Valve, for oil pipe line gravity systems.*

# NEW

# ANNOUNCING OUR NEW CARLOS PIPELINE SHUT-OFF VALVE

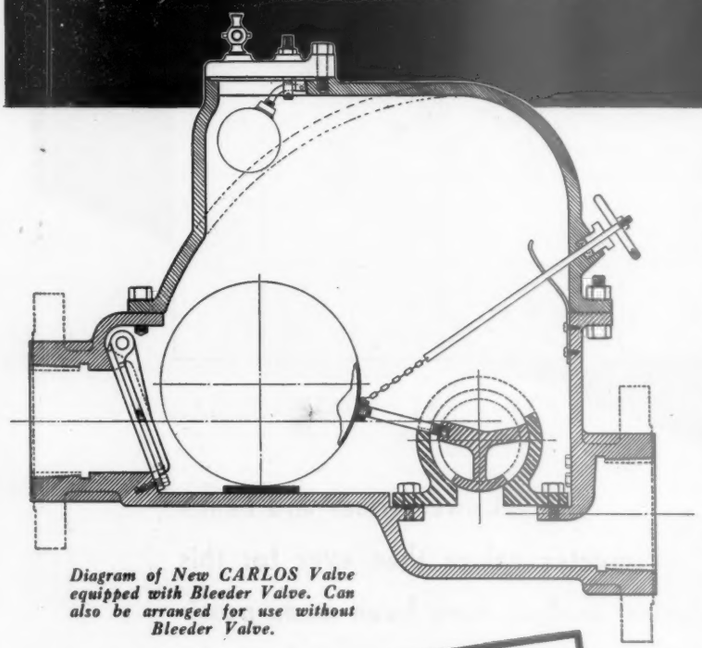


*Diagram of New CARLOS Valve equipped with Bleeder Valve. Can also be arranged for use without Bleeder Valve.*

## METHOD OF OPERATION

Valve is inserted on ground line near tanks. While float is at rest, the outlet is closed—but when oil is admitted, float rises, opening the outlet valve.

Gas or air entering Valve collects in top of chamber, which is open to the outer air through the Bleeder Valve until rising oil level automatically closes Bleeder.

When oil flow is insufficient to tax capacity of ground line, oil level in valve falls, lowering float and automatically adjusting outlet opening at the point where it will just accommodate the available flow.

## WHICH AUTOMATICALLY KEEPS AIR OR GAS OUT OF PIPE LINES

WESTCOTT & GREIS are pleased to announce a valve that has long been needed by the pipeline industry—our new *full-automatic* CARLOS Pipe Line Shut-Off Valve for oil pipe line gravity systems. This is the only valve of its kind which is *fully* automatic, offering *3 main automatic features.*

It offers these 9 important advantages: (1) It automatically shuts off ground line the instant oil flow is exhausted,—before any air or gas can enter pipe line. (2) It will also re-open automatically, should any operating conditions cause the valve to close before the tank is empty. (3) It automatically adjusts itself to any volume of flow, up to maximum capacity of ground line, thus cannot be "starved". (4) Its Bleeder Valve automatically expels air or gas entering the valve from tank or ground line. (5) Its Back-Up Check Valve prevents any flow from ground line back into tanks—thus avoids danger of overflowing tanks on low levels. (6) Its two opposed Pressure-Relief Valves eliminate danger of excess pressure resulting from expansion within valve chamber when valve and tank stops are in closed position. (7) Valve outlet is only a few inches lower than inlet. (8) It embodies three valves in one; a Back-Up Check Valve, a Bleeder Valve, and an automatically adjustable Shut-Off Valve. (9) The Back-Up Check Valve, being on the inlet side, acts as bleeder for the whole system, whether running oil or not.

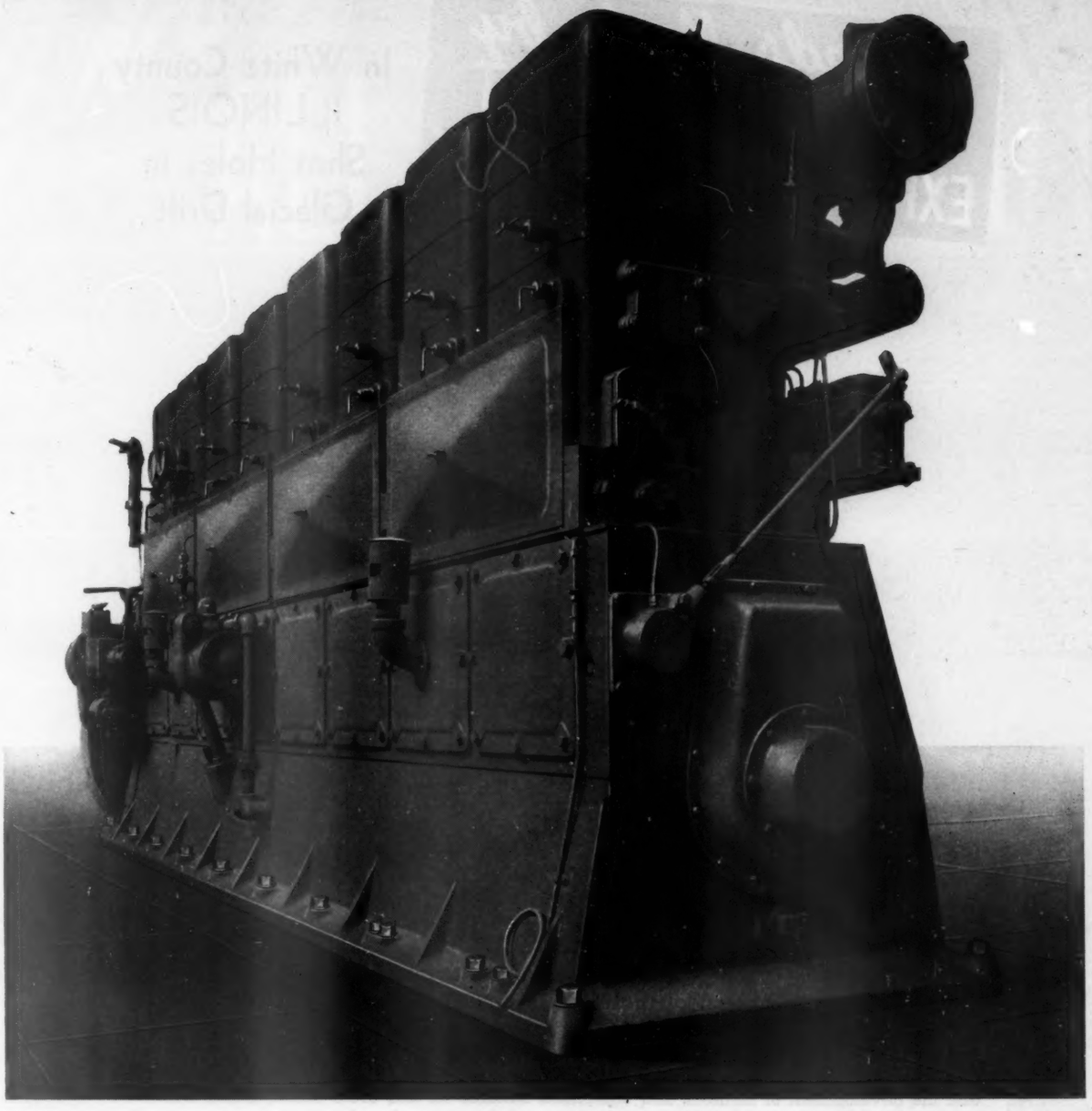
The successful performance of the CARLOS Valve has been demonstrated during 7 months of exhaustive field tests, by a major pipeline company. In not one instance has the CARLOS Valve failed to function properly. Write us for new descriptive bulletin.

## WESTCOTT & GREIS, INC.

*Division of American Meter Co., Inc.*
Beacon Bldg., Tulsa, Okla.

BRANCH OFFICES: 2017 Magnolia Bldg., Dallas, Texas. c/o Universal Terminal Warehouse Co., 1006 Washington St., Houston, Texas.

# Thoroughly Reliable!



Above all else—Reliability of power is the principal demand of the oil driller. Regardless of price, or other qualities—Reliability is paramount. Atlas Diesels are famed for their ability to deliver a smooth and uninterrupted flow of power, and their comparative freedom of shutdown.

Atlas Drilling Diesels in sizes of 80, 120, 200 and 275 H.P. are built in our Factory at Mattoon, Illinois, and parts and service are available at that point. Drillers operating in the Illinois Field should consider their proximity to the Atlas Factory when considering Diesel power. Visiting oil men are invited to inspect our Eastern Factory.

*SEND FOR A COPY OF OUR BULLETIN "ATLAS IMPERIAL DIESELS FOR ALL OIL FIELD SERVICE"*

**ATLAS IMPERIAL DIESEL ENGINE CO.**

OAKLAND, CALIFORNIA · · MATTOON, ILLINOIS

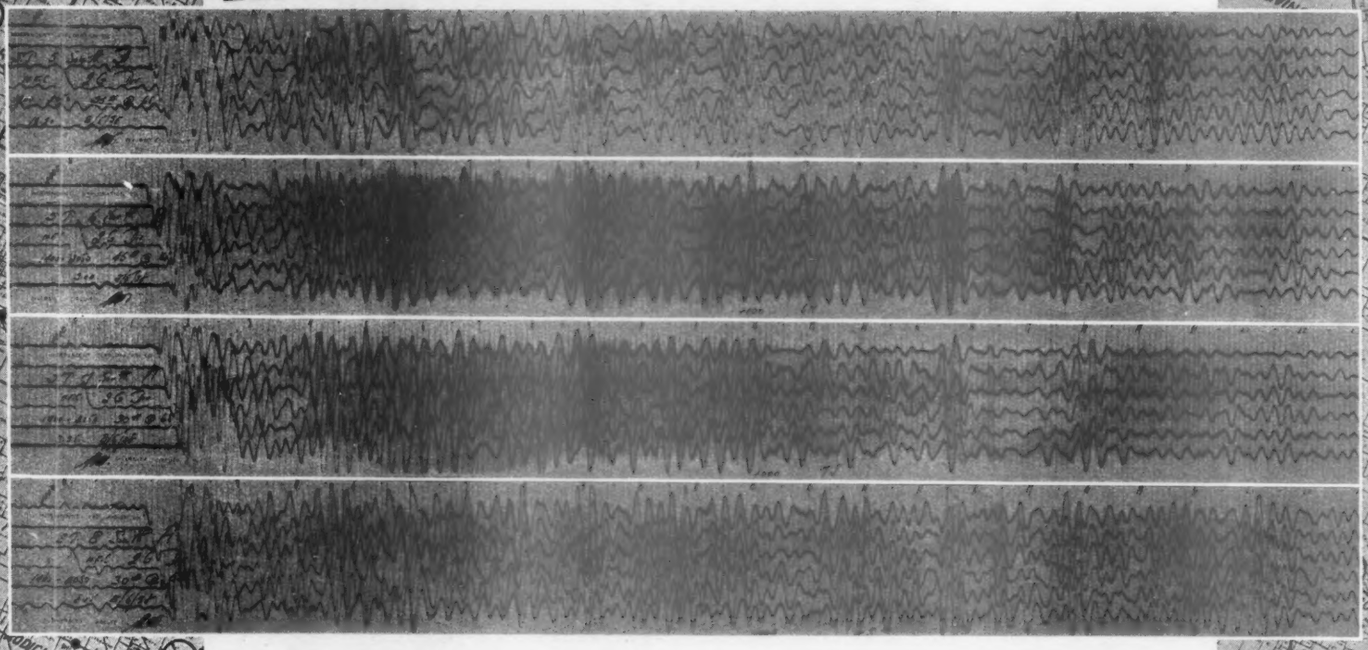
*Oil Country Distributors*

K. S. RICHARDS · WICHITA · OKLAHOMA CITY · FORT WORTH · HOUSTON

# ATLAS IMPERIAL

# Records Made by INDEPENDENT EXPLORATION COMPANY

## In White County ILLINOIS Shot Holes in Glacial Drift



**The records reproduced above show the character of records obtained by INDEPENDENT in a difficult area, covered with glacial drift. Note the shallow reflections at 0.4 seconds and excellent correlations at 0.9 seconds and 1.57 seconds.**

## TO OIL OPERATORS IN THE ILLINOIS AREA

**Let INDEPENDENT solve your geophysical problems in the Illinois area.**

**An INDEPENDENT survey at Patoka resulted in the first oil production from a geophysical structure in Illinois.**

**The experience obtained by many crew-months of operation in Illinois, Indiana and Kentucky, and the development of methods and equipment suitable for this area, assure INDEPENDENT'S clients of satisfactory results. This experience, and the convenient location of a branch office in Mattoon, Illinois, enables INDEPENDENT to offer services of unusual value.**

## MAKE YOUR GEOPHYSICAL HEADQUARTERS AT THE INDEPENDENT OFFICE IN MATTOON, ILLINOIS

**Cost estimates and other information will be gladly furnished without obligation.**

★

**Operators and geologists are invited to send for an illustrated booklet.**

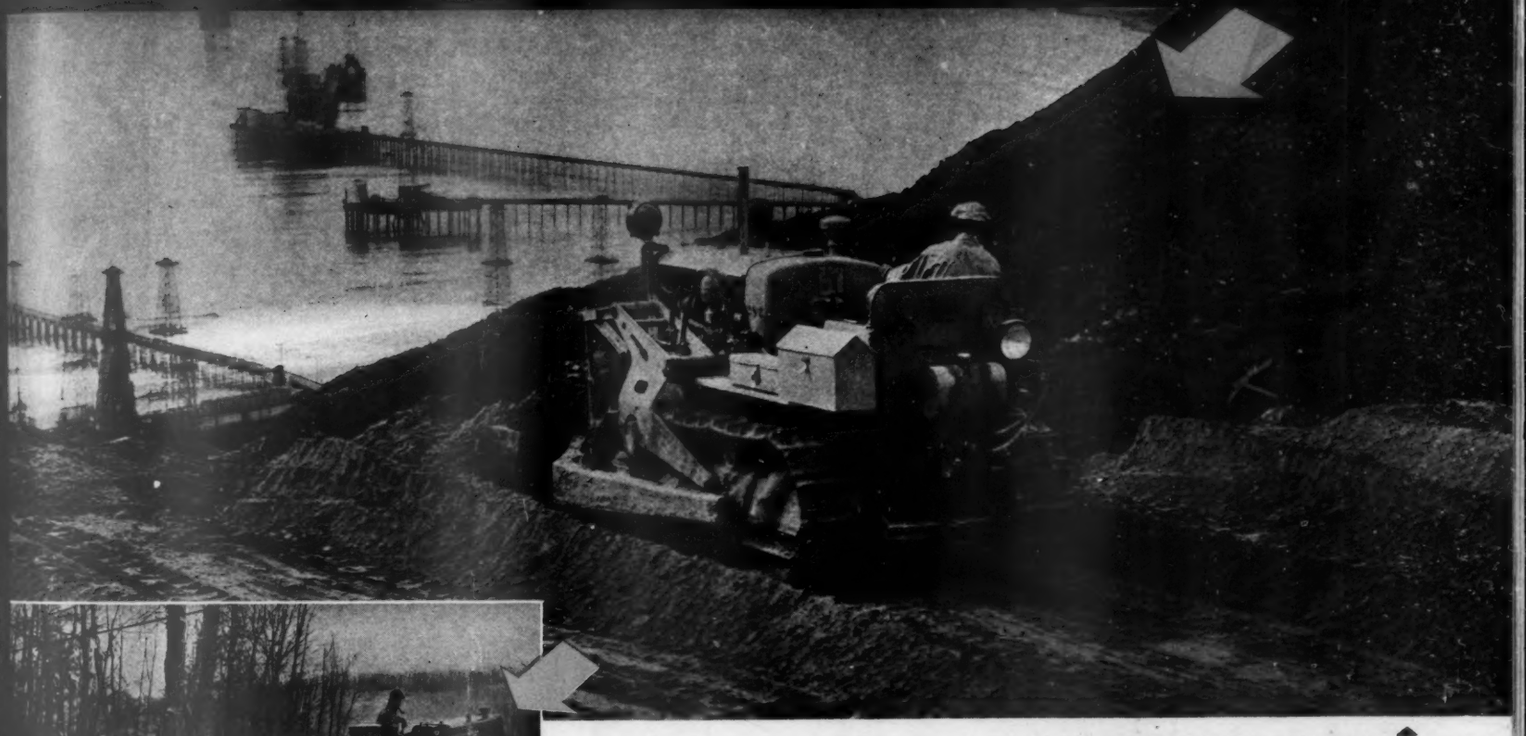
# INDEPENDENT EXPLORATION COMPANY

POINTING THE WAY FOR THE OPERATOR

ESPERSON BUILDING HOUSTON TEXAS

## Experienced in 22 States and in Foreign Fields

# *Give it* ALL YOU'VE GOT!



A winch-equipped "Caterpillar" Diesel D4 Tractor moves an oil-field boiler near Rixford, Pennsylvania. A winch like this gives you almost double the tractor's drawbar pull!

Working under difficulties in southern Illinois! Yet this "Caterpillar" Diesel D4 Tractor, with a LaPlant-Choate bull-dozer, keeps going for 10 hours at a stretch on these slush-pit jobs . . . and uses only 11½ gallons of 8 1/5c fuel!

A "Caterpillar" Diesel D6 Tractor, with a K-B Master trail-builder, benching out a side-hill for a rig-site in California. "Caterpillar" Diesel power . . . traction . . . responsiveness . . . and maneuverability make short work of jobs like this!

"CATERPILLAR" Diesel equipment is *ready* and *able* for any job that comes up . . . digging slush-pits . . . pulling and running rods . . . pumping . . . drilling . . . pushing . . . hauling . . . building roads . . . clearing rig-sites! Give it all you've got, and it will give you *all* it's got; stay on *any* job and see it through to a profitable finish!

That this is true can be found in the wide oil-field acceptance of "Caterpillar" Diesel equipment—engines and tractors. All over the United States, all over the world, "Caterpillar" Diesels get the toughest jobs—are put to tasks that test their stamina and strength for hours, days, weeks on end!

Three scenes—from California, Pennsylvania and Illinois—are shown here. Go anywhere you want, and you'll find other "Caterpillar" Diesels doing the same jobs . . . *and every other oil-field job.* Because operators know they can give this equipment all they've got, and depend on it to *make money* for them!

# CATERPILLAR

## TRACTOR CO., PEORIA, ILL.

DIESEL ENGINES • TRACK-TYPE TRACTORS • ROAD MACHINERY

EMSCO

A Complete Line of Better Oil Well Equipment

# We Salute You

with a complete line of drilling and production equipment engineered specifically for wells of shallow and medium depths, a few individual units of which are illustrated.

The outstanding success of Emsco products in all fields throughout the world is due in a large measure to the fact that each Emsco unit is carefully designed and engineered for the specific service for which it is recommended.

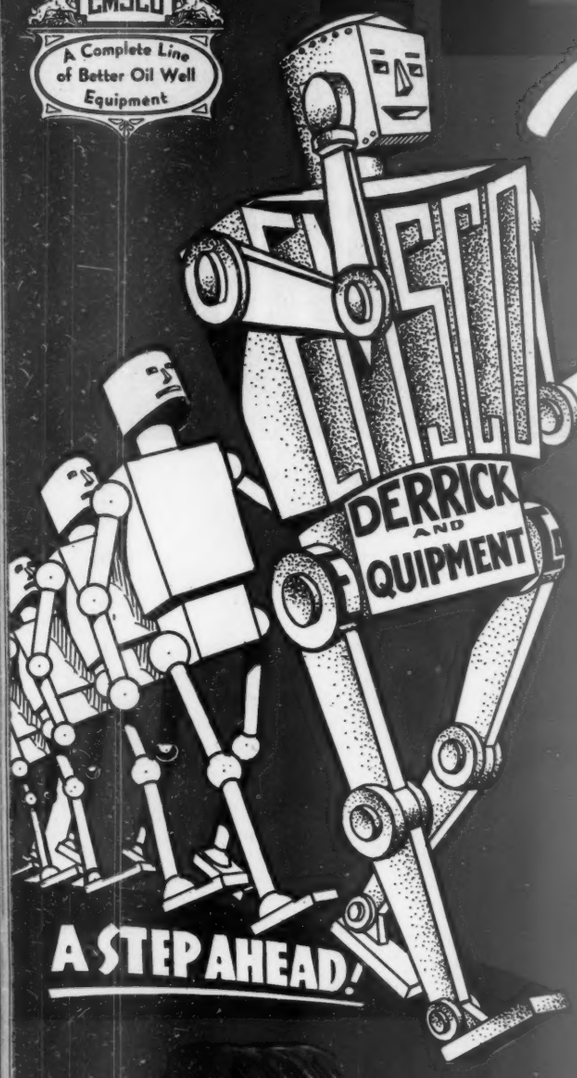



Fig. 1. One of the numerous types of Emsco Portable Drilling Machines. The one illustrated consists of an Emsco PDM-36 Draw Works; Type GB Reverse Clutch; and Type GBM Totally Enclosed, Flood Lubricated Transmission. Designed to be powered by two internal combustion engines of approximately 250 total horsepower; for economical drilling to depths not exceeding 3,500 feet. Provision is made for driving slush pump direct from transmission case. Larger and smaller Emsco units of similar design are also available.

Fig. 2. EMSCO TYPE E-30-4 CROWN BLOCK. All roller-bearing Manganese sheaves; sturdy, safe and dependable. Available with either four or five sheaves.

Fig. 3. EMSCO 54-INCH 3-SHEAVE TRAVELING BLOCK. Companion to the Emsco E-30-4 Crown Block sheaves and bearing assemblies being interchangeable. Also available with four sheaves.

Fig. 4. EMSCO TYPES AB-4 and AB-6 SWIVELS: Designed especially for drilling wells of shallow and medium depths, and incorporating many of the field-proved exclusive features of larger Emsco swivels.

*Ask for Bulletins describing and illustrating the Emsco Type "L" 17-Inch Totally Enclosed Rotary Machine, and the new Emsco Type P-130-46 Draw Works especially designed for Illinois fields.*

FIG. 2

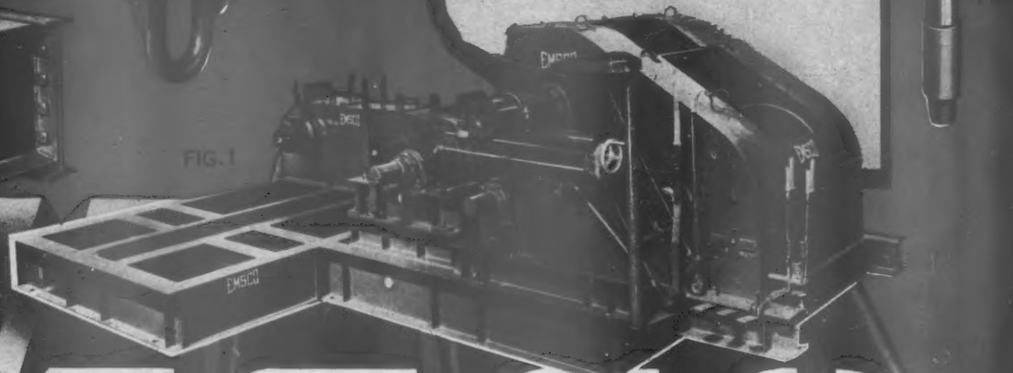



FIG. 1

FIG. 4

# EMSCO

EMSCO DERRICK & EQUIPMENT COMPANY

Los Angeles — Houston — Dallas

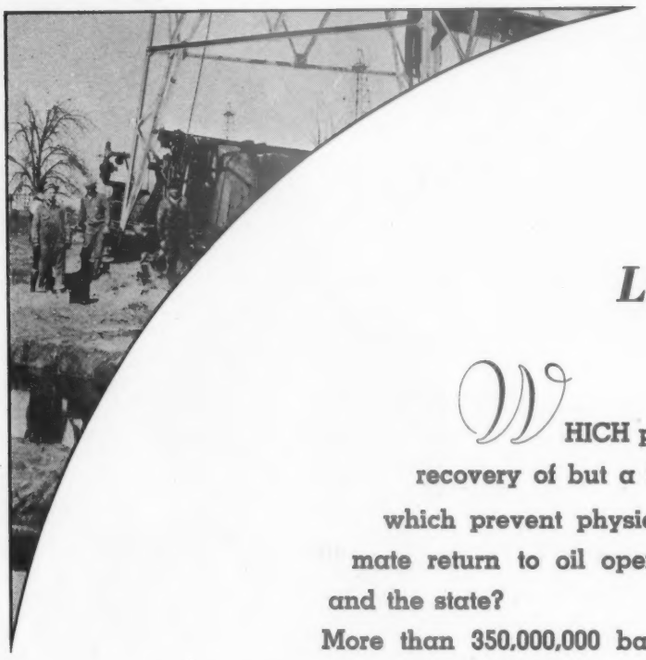
EQUIPMENT DESIGNED AND BUILT IN THE MID-CONTINENT BY CONTINENTAL SUPPLY COMPANY

A SUBSIDIARY OF EMSCO DERRICK & EQUIPMENT COMPANY OF CALIFORNIA

*—and now you turn to the*

Robert Yarnall Richie

# ILLINOIS BASIN SECTION



# *Look Ahead, Illinois!*

WHICH path will Illinois follow? Immediate recovery of but a fraction of its oil—or requirements which prevent physical waste and assure largest ultimate return to oil operators, lease and royalty owners and the state?

More than 350,000,000 barrels of oil have been recovered from the great Smackover field. But—because of wasteful production practices—more than a billion barrels of oil have been left in the ground there, never to be recovered by any methods we know today. Thus states Chairman O. C. Bailey, of the Arkansas Board of Conservation, citing the official record.

East Texas produced a million barrels in a single day. If this rate of output had been continued, what would have been the condition of that field today?

Only the enforcement of conservation regulations has saved East Texas from the fate of Smackover.

The Illinois basin's situation is familiar in the history of oil-producing states. In the past, conservation was usually enforced only after bitter experience had proved its necessity. The door was locked too late.

In this case there is time. Illinois still has the opportunity to profit by the past and avoid the irreparable losses suffered by other oil states.

If those who recall the helter-skelter development of the

# The BEST jobs are welded with TUBE-TURNS!

INVESTIGATE the best-planned piping jobs anywhere, and the chances are you'll find they're welded with Tube-Turns. That's because most engineers are convinced that welding is the best method of construction, and that Tube-Turns combine several features which are *indispensable* to the best piping. . . . (1) Tube-Turns are truly uniform in wall-thickness—they have full thickness at all points. This is essential for *full strength*. (2) Tube-Turns have extreme dimensional accuracy—they line up perfectly with the pipe. This is essential for *economical welding*. (3) Tube-Turns have full radius and smooth, uniform curvature—they cause less pressure drop. This is essential for *low operating costs*. . . . Ask your local distributor to show you some cut-away samples. We believe one look will convince you. . . . Tube-Turns, Incorporated, Louisville, Kentucky.

The word "Tube-Turn" is NOT a necessary general trade name for welding fittings. It is the registered trade-mark for the products made by Tube-Turns, Incorporated, under their patents.

# YOU CAN'T "BABY" THE DRAW WORKS

Nobody ever made hole by going easy on the draw works. And no draw works is better than its shafts. They get the brunt of the service. They must be able to stand up and take it. They must be made of a steel that can withstand not only constant use, but abuse as well . . . otherwise there's trouble and expense in large quantities.

Chrome-Moly (S.A.E. 4140) is proving its dollars-and-cents value as a material for draw works shafts. It is strong and tough, with high fatigue strength. Speeds can be as high and loads as heavy as the job demands. No fear that Chrome-Moly shafts — drum, jack or line — will let you down.

Moly steels are being put to many different uses to save money and increase efficiency in the oil fields. Our book "Molybdenum in Steel" tells the story. It is free for the asking.

**Climax Molybdenum Company**
**500 Fifth Avenue, New York City**

**MOLY**

# LIFE PROLONGED WITH 12 DIFFERENT TYPES AND HUNDREDS OF COMBINATIONS

## AXELSON PUMPS *don't just happen*

***Prove** and **improve** has been the watchword of Axelson engineers for almost half a century. Adherence to that policy has called for **planned engineering** . . . for painstaking attention to details . . . for carefully controlled manufacturing. That's why highly skilled minds and hands guide every step of Axelson production . . . from the selection of raw materials to the assembly of fabricated parts.*

**Steadily, over a 46-year period the number of satisfied users of Axelson pumps has increased year by year. During this time the Axelson factory has grown from a tiny frame structure with a dozen employees into modern industrial plants employing hundreds of skilled artisans.**

**Today, Axelson leadership is an established fact. The constant, untiring efforts of Axelson engineers in providing improved and more efficient oil well pumps, with prolonged LIFE, have made it so.**

**Whenever high efficiency and dependability is desired . . . wherever a reduction in working time and costs is demanded . . . specify Axelson Deep Well Plunger Pumps.**

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

Here turret lathes, automatic screw machines, grinders and other special machinery run constantly to produce various parts for Axelson pumps.

Gray iron, alloyed iron and steel liners are bored, faced and honed to tolerances closer than those demanded by A. P. I. specifications.

# AXELSON

## DEEP WELL PLUNGER PUMPS · SUCKER RODS

AXELSON MANUFACTURING COMPANY — P. O. Box 98, Vernon Station, Los Angeles • St. Louis • 50 Church Street, New York • Tulsa

*Mid-Continent and Eastern Distributor:* Frick-Reid Supply Corporation

*Rocky Mountain Distributor:* Great Northern Tool & Supply Company

*Foreign Representatives:* "COSMOS" Soc. in Nume Colectiv, Bucharest, Roumania • *Direct Factory Representative,* Bucharest, Roumania • Industrial Agencies, Ltd., San Fernando, Trinidad, British West Indies *Factory Representative,* Maracaibo, Venezuela • Armco International Corp., Buenos Aires, Argentina

# LUCEY

## *Now In*

# ILLINOIS

## with a Store in

# Fairfield

•

**Maintaining a General Supply Stock and Complete WHELAND-LUCEY and LE ROI Parts Service**

PRODUCTS LUCEY CORPORATION

**STORES AND OFFICES:**

| | | |
|---|---|---|
| OKLAHOMA CITY | ARDMORE | SHREVEPORT |
| STONEWALL | HUTCHINSON | ODESSA |
| ADA | FAIRFIELD | WICHITA FALLS |

**EXPORT:**

Lucey Export Corporation, 3505 Woolworth Bldg., New York, N. Y.

Broad Street House, London, E.C.2, England

PRODUCTS LUCEY CORPORATION

**LUCEY PRODUCTS CORPORATION**

OIL WELL SUPPLIES

TULSA, OKLAHOMA

Look for the Blue Barrels




MODERN EFFICIENT

SAVE with VISCO

the New Day Emulsion Breaker

VISCO PRODUCTS COMPANY, *INCORPORATED* · HOUSTON, TEXAS

# "BRIDGEPORT" means "SUPPLY-HEADQUARTERS" in the ILLINOIS BASIN

To many an operator and producer in the Illinois Basin, Bridgeport is "supply-headquarters" because he can obtain what he needs—a nipple, a water can, a rental fishing tool, a complete drilling rig, production equipment, or services as diversified as his needs may be—when and where he wants it. Bridgeport equipment and service facilities are never more than than a few hours, many times only a few minutes, from his field location—as near as the handiest telephone.

Bridgeport stores are stocked with equipment designed for the particular requirements of the Illinois Basin—portable, low cost equipment for shallow drilling, much of which may be converted at small cost for deeper drilling; cable tools for light weight and regular casing; and production equipment to fit the needs of the producing property.

If you are operating in the Illinois Basin, or contemplate moving in, it will pay you to contact the handiest Bridgeport store in the territory, or any of our distributing branches and service offices in the buying centers of the oil country.

Bridgeport's Illinois Basin pipe yards are well stocked with new and used Casing, Tubing, Line Pipe and Drill Pipe.

A typical Bridgeport Branch Store, one of several now being established in key supply points in the Illinois Basin.

Fast and economical rail and truck services make the facilities of our Wichita factory and our Mid-Continent stocks convenient for Illinois Basin operators.

## • NEW PORTABLE

### NEW GUMBO BUSTER
### 17½ inch OIL BATH ROTARY

The new Gumbo Buster, 17½" Roller Bearing Pinion Shaft, Oil Bath Rotary is designed to meet the requirements for a high speed, inexpensive Rotary for shallow and medium depth drilling, similar to that in the Illinois Basin. . . . Like the popular 26" Gumbo Buster Rotary, it is built entirely of steel. Pinion Shaft Roller Bearings, Pinion, Table Bearings, etc., are completely enclosed and operate in a bath of oil. Table is made of Chrome Nickel steel. Pinion shaft Bearings are wide apart and Pinion Shaft is sufficiently large to eliminate any likelihood of shaft deflection. The Overhanging Sprocket provides ease of chain installation and eliminates any chain interference with skids. . . . An especially important feature is that the Rotary is long enough to fit the sills of the conventional rig, so that no false skids are necessary. It is designed for maximum high speeds, is light enough to be easily transported and priced sufficiently low to be exceedingly practical for use in medium depth and shallow drilling.

Are you receiving

# BRIDGEPORT

THE BRIDGEPORT MACHINE COMPANY Factory and General Offices, Wichita, Kansas

TELEPHONE DAY OR NIGHT

HOUSTON L. D. 203 Local "Cap

ODESSA L. D. 683 Local

TULSA L. D. 681 Local 5-3204

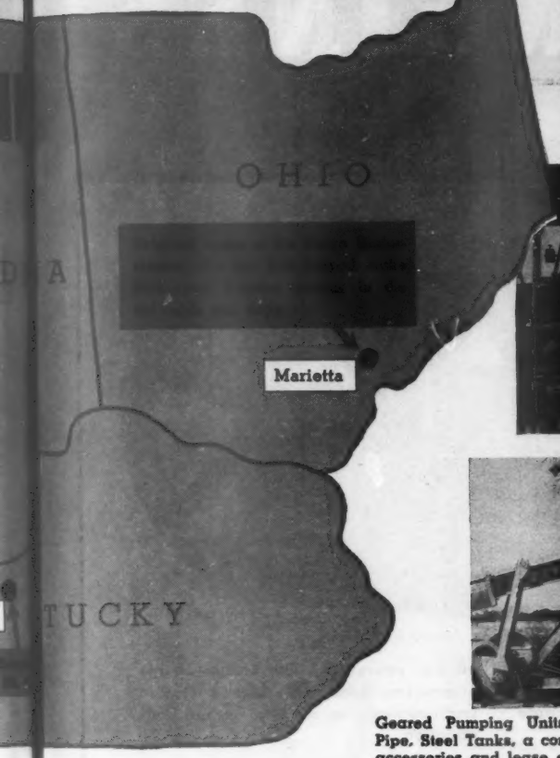
OKLAHOMA CI L. D. 785 Local

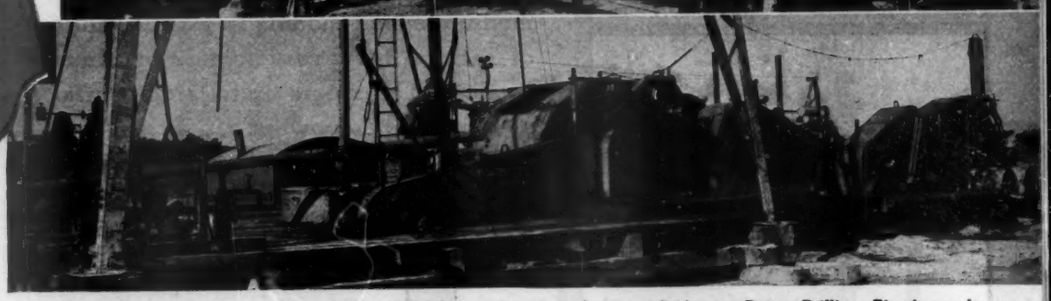
DAL L. D. 584

FORT Local and

BARTL Local and

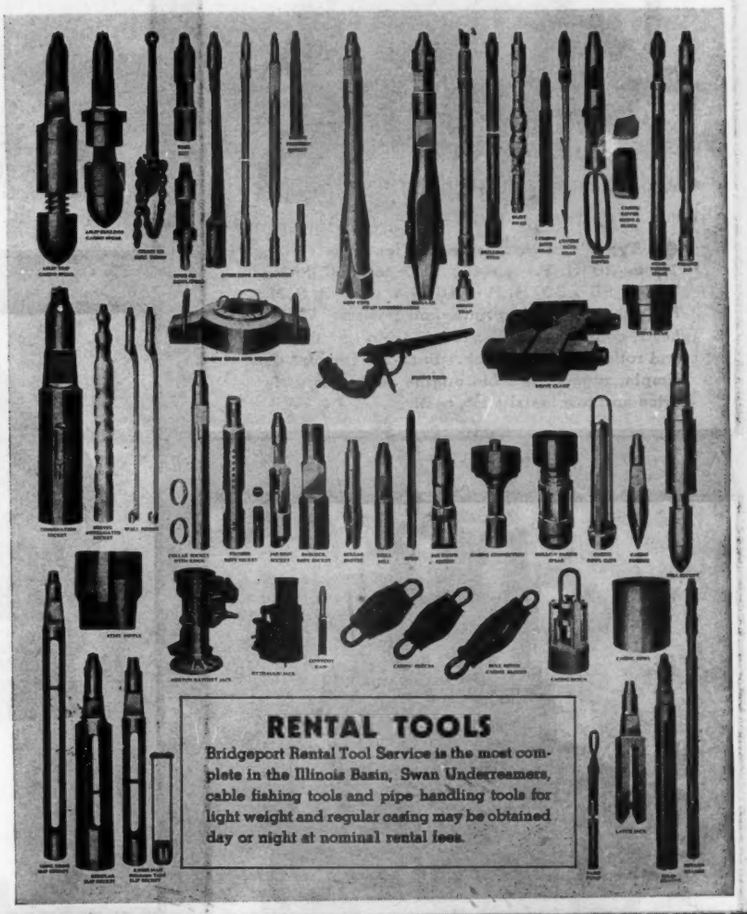
# HEADQUARTERS"





**Above: Two of several types and sizes of Bridgeport Rotary Drillings Rigs in use in the Illinois Basin.**

**Geared Pumping Units, Tubing, Rods, Line Pipe, Steel Tanks, a complete line of pumping accessories and lease equipment is carried in our Illinois Basin stores.**



## RENTAL TOOLS

Bridgeport Rental Tool Service is the most complete in the Illinois Basin, Swan Undereamers, cable fishing tools and pipe handling tools for light weight and regular casing may be obtained day or night at nominal rental fees.

## RILLING MACHINERY

### NEW GUMBO BUSTER

### SMALL, COMPACT OIL BATH DRAW WORKS

**The new Gumbo Buster, 4-speed, totally enclosed, Roller Bearing, Oil Bath Draw Works is especially designed for shallow and medium depth drilling. It may be powered with one internal compustion engine for shallow drilling, in which case the pump and pump motor may be operated as a separate unit, or equipped with compounding drive from pump to draw works motor; or it will accomodate two engines with compounding hook-up. It is adaptable for drilling to depths up to 3,500-4,000 feet at steam speed, yet is small, compact and sufficiently inexpensive to be used for shallow drilling. . . . It has many features which makes it more economical and practical than many of the make-shift arrangements used for shallow drilling. For instance: All four speeds to the hoist and all four speeds to the rotary table are changed (without stopping motors or hoist) by shifting friction clutches. This makes for longer chain life, reduces shock and wear on bearings and enables the driller to make speed changes with minimum effort. All speed changes both to the hoist and the rotary table are controlled by one single lever, as compared to the dozen or more levers and foot pedals used on the conventional friction clutch rigs. . . . An outstanding advantage is that the unit may be purchased for shallow drilling with the single engine hook-up and later converted to a two engine hook-up for deep drilling at small additional cost.**

## ...e Bridgeport Bulletin? →

Published twice monthly, it supplies timely information on equipment, new methods, new ideas, and practical suggestions that aid in lowering operating costs. Sent free of cost to those actively engaged in the oil business. If you are not receiving it, mail the coupon.

Mail to The BRIDGEPORT MACHINE CO.
P. O. Box 730 WICHITA, KANSAS

Date

Please add the following name to your "BULLETIN" mailing list:

Individual's Name_____

Title or Duties_____

Company with_____

Bldg., Street or P. O. Box_____

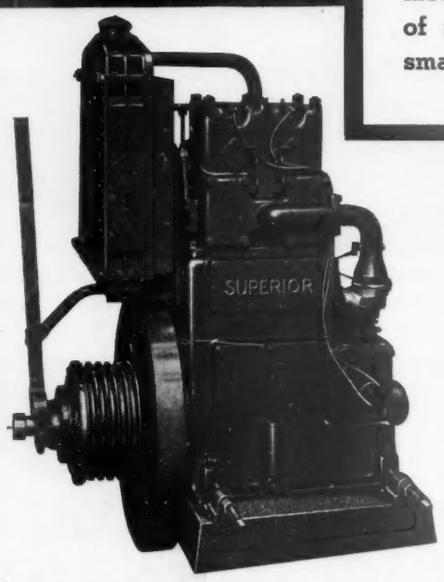
City and State_____

Remarks:_____

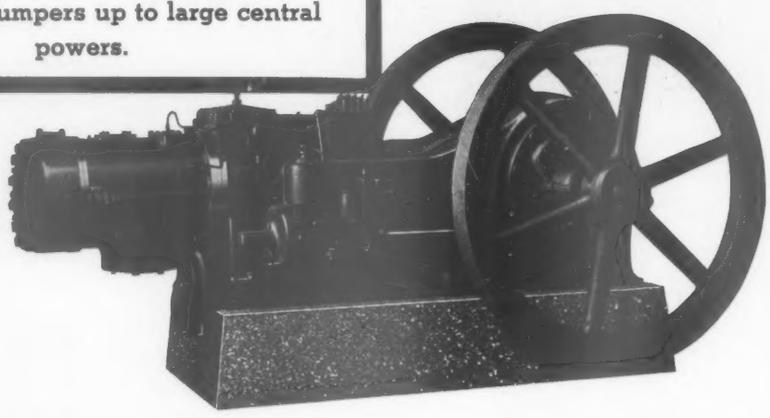
| | | | |
|---|---|---|---|
| ON | DALLAS | SAN ANTONIO | CORPUS CHRISTI |
| | L. D. 584 Local 2-4282 | L. D. 219 Local "Gar" 5671 | L. D. 31 Local 574 |
| SA | FORT WORTH | SHREVEPORT | CENTRALIA, ILL. |
| | Local and L. D. 3-3506 | L. D. 15 Local 6481 | Local and L. D. 589 |
| MA CI | BARTLESVILLE | WICHITA | AND |
| | Local and L. D. 3410 | L. D. 59 and 116 Local 2-1431 and 2-1432 | BRANCH STORES |

# Superior PUMPING ENGINES

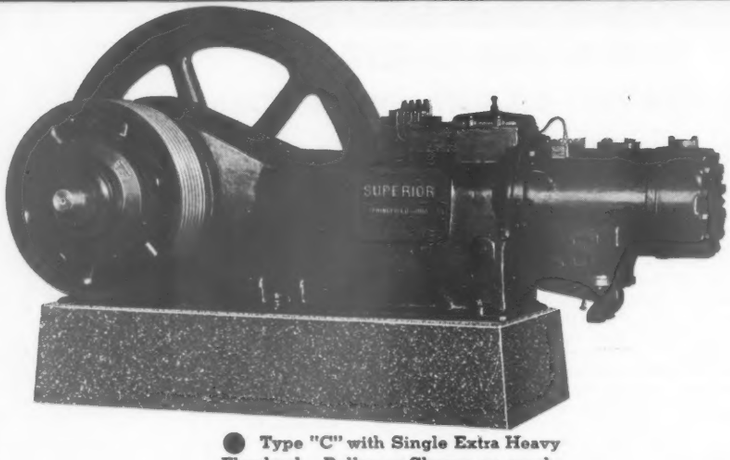
**Horizontal slow speed and vertical medium speed models in a wide range of ratings for every condition from small unit pumpers up to large central powers.**



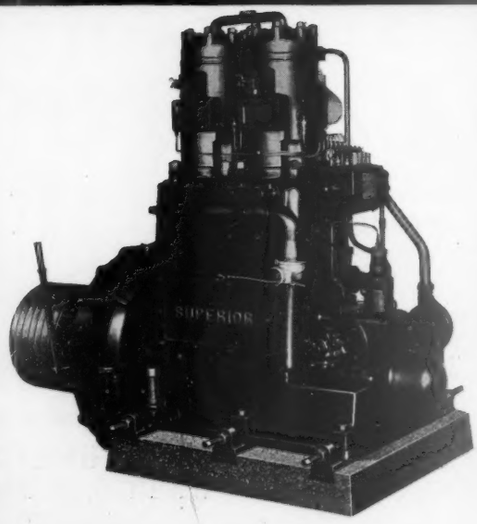

● Type "E" twin gas engine for wells taking 10 to 20 H. P.—speeds 300 to 700. Also Type "FB" 30 H. P.—400 to 600 R. P. M. For geared pumping units and powers. Crosshead construction. Roller bearing crankshaft and roller bearing clutch. Built-in radiator. A simple, rugged, reliable engine at a reasonable price and low installation cost.



● Type "C" horizontal in 25, 30, 40, 45 and 50 H. P. sizes for heavy duty service, is convertible to gas or crude oil fuel operation. The design of this engine incorporates the most desirable improvements in modern engine construction.




● Type "C" with Single Extra Heavy Flywheel. Pulley or Sheave on crankshaft with or without clutch. View shows clutch and sheave. Avoids clutch alignment troubles. Less space. Smaller foundation. Lower installation cost.



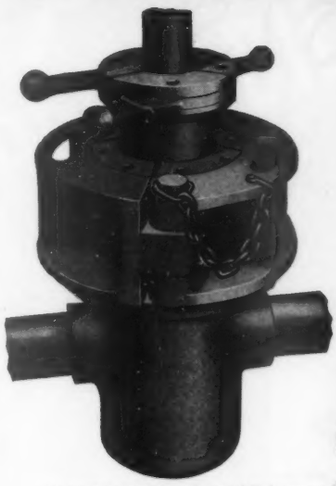

● "GB" twin 50 H. P. for larger gears and powers. Also "GB" 3-cylinder 75 H. P., "GB" 4-cylinder 100 H. P. and "M" 4-cylinder 160 H. P., for powers.

**NATIONAL**

THE NATIONAL SUPPLY COMPANY

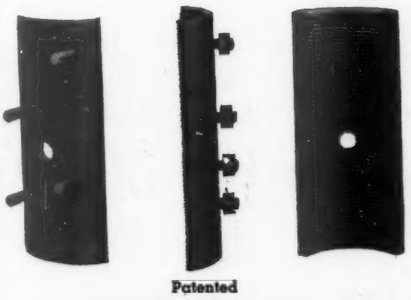
EXECUTIVE OFFICES: PITTSBURGH, PA.
DIVISION OFFICES: FT. WORTH, TEXAS; TULSA, OKLA.; TORRANCE, CALIF.
GENERAL SALES OFFICE: TOLEDO, OHIO

# When you use T-I-W SLIPS



Assembly showing Special Tubing Slip and Spider.

Showing the two halves of Two-Piece Slips, also liners for same. 13¼" bearing surface against pipe.



Patented

Showing knurled replaceable liners for T-I-W Reliner Type Slips.

Patented

T-I-W Regular Three Piece Reliner Type Slip. 13¼" bearing surface against pipe.

**FOR ECONOMY OF TIME AND MONEY SPECIFY T-I-W**

# TEXAS IRON WORKS

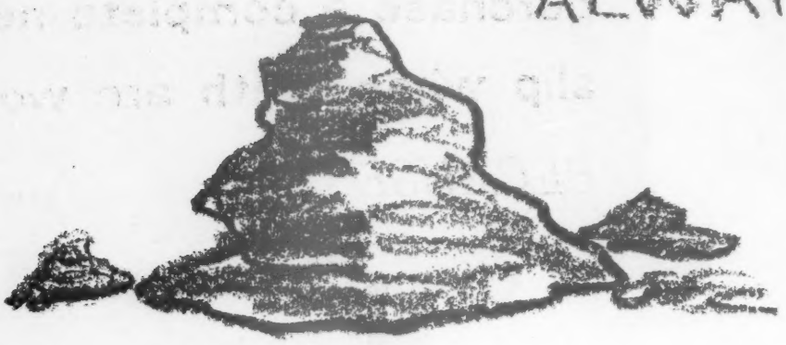
HOUSTON, TEXAS

1401-1423 *Maury Street*

# Soil-Analysis

TRADE MARK

ALWAYS



FINDS OIL

# CHEAPER

WRITE FOR PRICES.

GEOLOGICAL SCIENTIFIC SERVICE CO.

502 SINCLAIR BLDG.

FT. WORTH TEXAS.

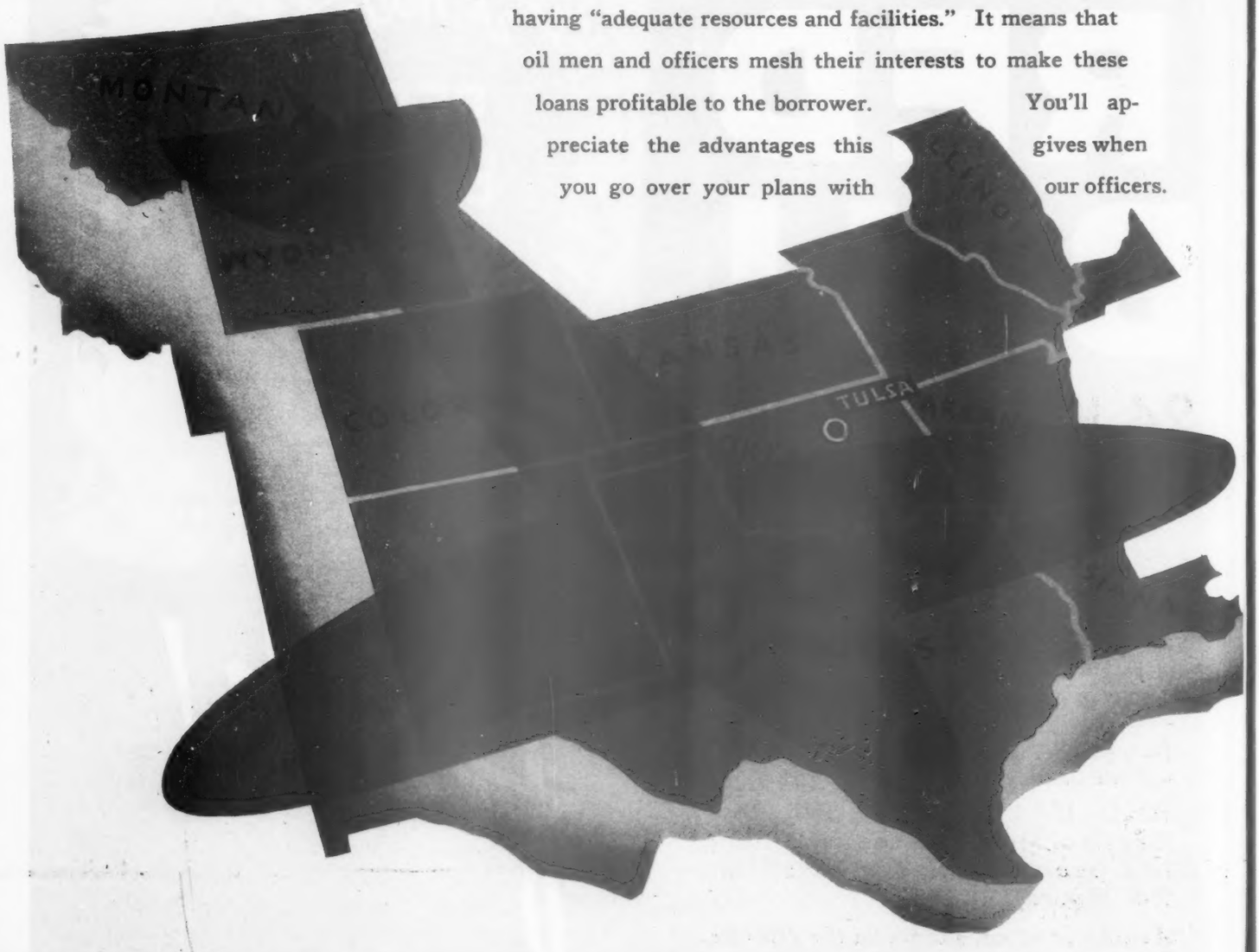
# Speed— DEPENDABILITY WITH RED BALL

*fresh!*

## MISSOURI PORTLAND CEMENT CO.

ST. LOUIS KANSAS CITY MEMPHIS

MILES ARE RECKONED IN MINUTES *when 11 oil producing states are within 5½ plane hours of Tulsa.* In the very heart of the major fields, this city merits its claim as *"The Oil Capital of the World."* . . . Here are located 44 major and 200-odd smaller oil companies—headquarters for oil field equipment manufacturers—scientific research and the NATIONAL BANK OF TULSA, *The Oil Bank of America*. Oil interests turn to this bank when they seek financial co-operation. Its signal specialization in this field means something more than having "adequate resources and facilities." It means that oil men and officers mesh their interests to make these loans profitable to the borrower. You'll appreciate the advantages this gives when you go over your plans with our officers.




# NATIONAL BANK OF TULSA

Member Federal Deposit Insurance Corporation

ST. ELMO, ILLINOIS
J. K. Guinn, Local Store Manager

SALEM, ILLINOIS
A. F. Keating, Local Store Manager

CLAY CITY, ILLINOIS
H. A. Loveladdy, Local Store Manager
J. W. Wade, Salesman

H. L. WILKINS,
District Sales Manager, Tulsa, Okla.

W. H. GREER,
Assistant District Sales Manager,
Owensboro, Ky.

H. H. WILCOXEN,
Local Store Manager, Owensboro, Ky.

W. F. FREEMAN,
Machinery Sales, Owensboro, Ky.

E. H. BEARD,
Salesman, Owensboro, Ky.

T. M. BATCHELOR,
Local Store Manager, Glasgow, Ky.

E. L. McCARTNEY,
Salesman, Mt. Vernon, Ill.

E. R. DICKISON,
Salesman, Vandalia, Ill.

ALSO IN

# ILLINOIS

# FRICK-REID

## Guarantees Dependable Service

ntensive drilling has created new frontiers of activity in Illinois, but oil men are not stampeded into careless buying. They want accepted equipment, and they want that equipment backed by time-proven assurance of local parts service when the fields are older.

So in the Illinois area, three Frick-Reid stores in the state and two in Kentucky are in the category of old and trusted friends to many operators. They signify the availability of the best equipment the nation affords. Their presence is reassuring and encouraging.

### DIVISION AND SALES OFFICES

Pittsburgh, Pa. Ardmore, Okla. Mt. Vernon, Ill. Wichita, Kansas
New York, N. Y. Dallas, Texas Fort Worth, Texas
Houston, Texas Midland, Texas San Antonio, Texas
And 73 Branch Stores in Old and New Fields

# FRICK-REID SUPPLY CORPORATION

## TULSA, OKLAHOMA

# Scientific Control
## OF MUD IN DEEP WELLS

### Assures less trouble, earlier well completions and greater production

Intelligent mud control consists not only of careful laboratory testing, but careful checking at the well.

When a mud of known characteristics is circulated in a deep hole, it immediately undergoes changes due to high temperatures, high pressures and the effects of different formations penetrated in the course of drilling. If these changes are watched and remedies applied, the result is less trouble, earlier well completions and greater production.

Baroid Engineers are trained in both laboratory and field work to control drilling mud scientifically. Baroid Products have proved their value in thousands of wells by providing faster, safer and more economical drilling.

**Imagine a column of drilling mud long enough to extend from the top of Mt. Whitney down through the earth to the level of Death Valley. Subject this nearly 15,000 foot long column of mud to high temperatures and pressures—load it with formation debris which may flocculate it, thicken it, make it abrasive or cause it to gas-cut.**

**Control of such a column is a task only for the technically trained mud engineer. His knowledge and supervision will help keep you out of trouble. Use Baroid Products and Service for best results!**

### BAROID PRODUCTS

BAROID—Extra-Heavy Drilling Mud. • AQUAGEL—Trouble-Proof Colloidal Drilling Mud. • STABILITE—An Improved Chemical Mud Thinner. • BAROCO—An Economical, Salt Water-Resisting Drilling Clay. • FIBROTEX—For Preventing or Regaining Lost Circulation in Drilling Wells.

Stocks carried and service engineers available in all active oil fields. Look for this trade mark under "Oil Well Drilling Mud" in your classified telephone directory for our nearest service engineer and distributor.

BAROID · AQUAGEL · STABILITE · OIL WELL DRILLING MUD SERVICE

## BAROID SALES DEPARTMENT

NATIONAL PIGMENTS & CHEMICAL DIVISION OF
NATIONAL LEAD COMPANY
BAROID SALES OFFICES • LOS ANGELES • TULSA • HOUSTON

# STEEL STORAGE TANKS — SPECIAL

150—80,000 Bbl. Cap. All Steel, Latest Type,
Quotations Reerected any location in the United States
Complete Stock all other size tanks
Write immediately for quotations.

## SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba
Riverview at Second
Kansas City, Kans.

J. O. Isaacks
Hays, Kansas

Robt. W. Duden
2100 S. Union
Tulsa, Oklahoma


25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.

Terms to suit.

CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

SECTIONAL STEEL BUILDINGS FOR SALE: 1—30 x 10 x 60 standing; 1—20 x 8 x 128 K.D. Oklahoma City; 1—24 x 8 x 106 K.D. Seminole. Condition O.K. Inspection invited. I. T. I. O., Bartlesville.

FOR SALE: Two rebuilt 8 cylinder 225 H.P. LeRoi Engines with V-Belt compound and reverse clutch. Unit mounted on steel substructure ready to set behind draw works and go to work. General Machine & Supply Company, Wichita Falls, Texas.

**OVER 100,000 FEET 10¾" O D**

Forty pound used wrought Iron line pipe with threads and couplings. Cleaned. Located Walton and Greentown, Indiana. Exceptionally LOW PRICED. Wire or Write.

**STANDARD OIL FIELD SUPPLY CO.**
P.O. Box 863 Houston, Texas

FOR SALE: At Oklahoma City warehouse several C-10 Sullivan pneumatic pumping heads complete and with preheater furnaces ready to go — or would rent, option to buy, with rental to apply on purchase. I. T. I. O., Bartlesville, Okla.

**FOR SALE**

Unitized Steam Rigs complete:
1—8" Johnson Drawworks.
1—8" Lucey Draw works.
Extra 6" Russian-Johnson Draw works.
3—Acme 100 H.P. 350 W.P. Boilers.
3—Broderick 100 H.P. 325 W.P.; 6500' 6", 6500' 3", and 13000' 4" drill pipe; all in good condition. Write

**R. H. HOLDEN**
Braniff Building
Oklahoma City, Okla.

FOR SALE — One completely equipped well at Talco, Texas, principal equipment being Emsco Pump Unit complete with gas engine, 7" O.D. 22# seamless casing, 4200 feet 2⅞" O.D. 6.50# seamless upset tubing, 4000 feet ¾" sucker rods, 1 Emsco 94' 12 KCC pump derrick. Will sell whole or any part. Address, Frank L. McNeny, Tower Petroleum Bldg., Dallas, Tex.

**FOR SALE**
**HOLLOW-BORED USED STEEL LOCOMOTIVE AXLES**

Bore 3"; 6" to 12" dia., approximately 46" long.

Possible cheap attractive substitution for costly billet, bloom, tube, shafting, axle, rod, etc., steels.

Also SOLID LOCOMOTIVE AXLES and STEEL FREIGHT CAR AXLES from 3¼" to 6⅞" diameters.

Large stocks always available. Write for prices, analyses, sketches, etc.

**IRON & STEEL PRODUCTS, INC.**
Chicago (Hegewisch Sta.), Ill.
*Anything containing IRON or STEEL*

1—Complete large steam end consisting of 3—125 HP 300# WP Kewanee boilers, 2—7¼ x 18 Oil Well Pumps, 1—12 x 12 Oil Well RB Oil Bath Engine, 1 Unitized Water Feed Pump with two Pumps, Generator, Heaters and all connections, 1—Pipe rack with all piping and steam fittings. A-1 condition. Located Winkler County, Texas.
2—Complete small steam ends—Good condition—Located Monroe, Louisiana.
1—Portable Rig, Rig #447, complete with 180 HP Waukesha Hesselman engines. slush pump and all equipment including 3,200 feet 4½" pipe.

K. S. RICHARDS
P. O. Box 830. Ph. 2-1161. Fort Worth, Tex.

FOR SALE: At our Oklahoma City Warehouse Model D48 Muskogee Iron Works long line well servicing unit powered by HXE Hercules engines mounted on No. 55 truck. I.T.I.O., Bartlesville, Oklahoma.

TRACTORS

Government crawler type Caterpillars, 5 ton $375, 10 ton $695. Slightly used. Perfect condition.

O. C. EVANS
Mt. Sterling, Ky.

**FOR SALE**

1—model OXC Star Drilling Machine with Hercules 50 h.p. gasoline motor—mounted on Caterpillar Traction. Also casing, line pipe, drilling machinery, etc. We have a complete line of all including 25,000 feet of 8-inch second-hand plain end line pipe located in Kansas. Wire, phone or write to

**LOUISIANA IRON & SUPPLY COMPANY**
**Shreveport, Louisiana**

ONE complete string steam rotary with rig, two 90 horse power boilers, in shape to drill immediately, priced $9500. One complete string steam rotary with rig. three 90 horse power boilers, complete with fishing tools and other extra equipment, in excellent shape to drill, priced $15,000. Rigs located on Tucker Lease, Haven, Kansas. For further information contact Vicking Drilling Company, c/o Yingling Chevrolet Co., Wichita, Kansas.

FOR SALE
4—80 H.P. Type X Bessemer direct gas driven compressors.
1—80 H.P. Clark Bros. Tandem Two stage gas driven compressor.
1—80 H.P. Commercial Type Bessemer engine with 52" clutch.
1—35 H.P. Bessemer Oil Engine.
2—16" x 20" and 1—12" x 20" 1. R. Comp. Cyl.
1—85 H.P. Titusville Iron Works Boiler.
3—70 H.P. Titusville Iron Works Boilers.
6—7' x 30" gasoline storage tanks 50# W. P.
1—72" x 30' Tulsa Type absorber.
2—60 x 30 Southwestern absorbers.
1—#25 S. W. Distillation Unit complete with Stabilizer, Kettle, S. W. Absorber and instruments.
W. S. SMITH, 412 Thompson Building Tulsa, Okla. Phones: 2-5473, 4-5427


MOVE THAT IDLE EQUIPMENT BY LISTING IT IN THE ACCEPTED MARKET PLACE OF THE OIL INDUSTRY . . .

CLASSIFIED ADS IN THE OIL AND GAS JOURNAL HAVE BROUGHT BUYER AND SELLER TOGETHER FOR MORE THAN 30 YEARS— AND STILL DOING IT.


PULLING units, skid type, spudder attached. 2000 ft. capacity. Motor mounted —$450.00 each. M. B. JENSEN CO., W. Tulsa, Okla., R. 5. Ph. 5-0882.

FOR SALE—1 Model KS-6-DHK Cardwell Oilwell servicing winch unit, mounted on Mack Truck. Can be inspected O.C. garage. Operating condition now. I.T.I.O., Bartlesville, Okla.

## Equipment Wanted

WANTED.—Keystone or Armstrong Spudder, Good Shape. Trade Leases, Royalties, or Farms, Illinois Basin. Elton Beck, Herrick, Illinois.

WANT DRILLING RIG
Cable or rotary for Wildcat Well 50 miles from Denver. Depth 5000 ft. mostly shales. If you have idle rig: Address
HENRY C. BEELER, Geologist,
1631 Race Street, Denver, Colorado.

## Mailing Lists

ROYALTY Lists. Unit Owners Lists. Stockholders Lists. By states. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

## Business Opportunities

OIL PRODUCERS I have buyers for your properties, partly developed preferable. See or write. E. B. REEVES, Box 13, Alanreed, Gray County, Texas.

HOT SPOT FOR SMALL REFINERY
Have the place for you, virgin territory, outlet for 200 to 500 bbl. plant. Sure crude supply, Wyoming field. Address
Box J-612
The Oil and Gas Journal, Tulsa, Okla.

## Geophysical Service

CAN FIND any oil structure that will produce when penetrated. P. O. Box 309 Tonkawa, Oklahoma.

## Engineering Service

ENGINEER'S Service Available. Confidential investigations of Natural Gasoline and Gas Re-pressuring possibilities of Gulf Coast areas. References Box 1096, Corpus Christi, Texas.

## For Sale—Maps

**OPPORTUNITY to purchase OIL MAPS** at less than printing cost. Office copies and imperfect prints, regular prices from $7.50 to $15.00. Many active areas in Texas and New Mexico included.
$2.00 Net Each
**ZINGERY OIL MAP COMPANY**
Fair Building Fort Worth, Tex.

**YOAKUM COUNTY, TEXAS**
New 10,000-foot scale map including Wasson Pool, Gaines county, showing present fee and lease owners, wells and dry holes.
Paper, $1.25; cloth, $2
Same map 4000-foot scale, paper, $5; cloth, $8.
**HEYDRICK MAPPING COMPANY**
Wichita Falls, Texas.

## Wanted

40 ACRES fee, Duncan, Okla. Thirteen Hundred feet, million feet gas, four bbls. oil—want party to Drill. Proven field. ANNA REED, 1611 Court Place, Denver, Colorado.

## Legal Blanks

SINCE 1908 Burkhart's legal forms—serving Mid.-Cont. & Illinois oil fields. Free catalog & samples. Burkhart Ptg. & Sta. Co., 115 So. Cinn., Tulsa, Okla.

## Ranches and Farm Lands

OFFERING below value 6100-acre improved ranch, in oil area of South Texas. Printed information on request. B. O. SIMS, JR., Kingsville, Texas.

## Crude Oil Prices

*(Continued from Page 234)*

Iles, heavy, Colo. (Oct. 11, 1938)† .92
Dutton Creek, Wyo. (Oct. 11, 1938)† See note below
Frannie, light, Wyo. (Oct. 11, 1938)† .55
Frannie, heavy, Wyo. (Oct. 11, 1938)† .42
Hamilton dome, Wyo. (Oct. 11, 1938)† .35
Midway, Wyo. (Oct. 11, 1938)† See note below
Salt Creek Tensleep crude, Wyo. (Oct. 11, 1938)† .646
Salt Creek (Oct. 11, 1938) See note below
Canon City, Colo. (Oct. 11, 1938)‡ .90
Florence, Colo. (Oct. 11, 1938)† .90
Cat Creek, Mont. (Oct. 11, 1938)‡ 1.10
Big Muddy, Wyo. (Oct. 11, 1938)‡ .98
Lance Creek, Wyo. (Oct. 11, 1938)‡ .77
Lea County, N. M. See West Texas gravity schedule†
Artesia, Jackson and Maljamar See gravity table†
Fort Collins and Wellington, Colo. See gravity table†
Eddy County, N. M. (October 11, 1938)¶ .77

*Ohio Oil Co. †Stanolind Oil & Gas Co. ‡Continental Oil Co. §Sinclair Prairie Oil Marketing Co.

Dutton Creek and Salt Creek Tensleep crude start at below 29 degrees, 86 cents, 2 cents spread to 40 and over at $1.10. Salt Creek crude excepting Tensleep, takes Standard Oil Co. of Indiana Oklahoma-Kansas prices. Stanolind Oil & Gas Co., effective October 11, discontinued posting prices in Greybull-Torchlight, Wyo., and Hogback and Hospah, N. M.

### West Texas

See gravity table.
Pecos County (Oct. 11, 1938)* $ .78
Pecos shallow (Oct. 11, 1938)† .65

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

### Eastern States

TIDE WATER ASSOCIATED OIL CO. and NEW YORK TRANSIT CO
(Effective September 1, 1938)
Bradford, Pa. $1.68
Allegany, N. Y. 1.68

SOUTH PENN OIL CO.
(Effective September 1, 1938)
Pennsylvania Grade Oil in National Transit Lines (Bradford field) $1.68
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.34
Pennsylvania Grade Oil in Eureka Pipe Line lines 1.28
Pennsylvania Grade Oil in Buckeye Pipe Line lines 1.18
Corning Grade Oil in Buckeye Pipe Line Co. line (Oct. 18, 1938) .97

PENNZOIL CO.
(Effective September 1, 1938)
Pennsylvania Grade Oil in National Transit Lines:
Group A $1.61
Includes Cochran, Franklin, Hamilton and Doolittle district.
Group B 1.60
Includes Tidioute district.
Group C 1.59
Includes Turkey and Tidioute districts.
Group D 1.58
Includes Bear Creek and Porkey districts.
Group E 1.56
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emienton, Tiona, Lacey and Kinzua districts.

PURE OIL CO.
(Effective September 1, 1938)
Cabin Creek, W. Va. $1.28
Bradford Hollow, W. Va. 1.28
Kelly Creek, W. Va. 1.28

# Index to Advertisers


A

Abercrombie, J. S., Co. 199
Abercrombie Pump Co.
Acme Lumber Company 137
Air Reduction Sales Co. 1
Ajax Iron Works 89
Alco Products Division—American Locomotive Company
Allis-Chalmers Mfg. Co.
Allsteel Products Mfg. Co., The 138-139
American Cable Division of American Chain & Cable Co., Inc. Inside Back Cover
American Cast Iron Pipe Company
American Iron & Machine Works
American Meter Company 34
American Sand-Banum Co., The 166
American Steel & Wire Company 12
Ann Bell Oil Company, The 125
Armstrong Machine Works
Athey Truss Wheel Co. 134
Atlas Drop Forge Co. 189
Atlas Imperial Diesel Engine Co.
Atlas Powder Company
Atlas Supply Co.
Auer, C. L., & W. W. 75
Axelson Manufacturing Company

B

Baash-Ross Tool Company
Babcock & Wilcox Tube Co., The 183-198
Badger & Sons Co., E. B. 110
Baker Oil Tools, Inc. 36
Baldwin-Duckworth Chain Corp.
Bantam Bearings Corp.
Baroid Sales Company 96
Barret, William M., Inc.
Bastian-Blessing Co., The
Beaumont Iron Works Co.
Bethlehem Steel Co.
Bond, B. E. & Company 124
Boston Woven Hose & Rubber Co.
Bovaird Supply Company, The 165
Braden Steel Corporation 10
Bradford Motor Works, Inc. 134
Bradford Supply Company 102
Brewster Company, The 201
Bridgeport Machine Company 82-83
Broderick & Bascom Rope Co. 9
Brown Instrument Co., The
Bruning Company, Inc., Charles 7
Buckeye Traction Ditcher Co., The 142
Butler Manufacturing Co.
Byron Jackson Co. 15

C

Cable, Jo H
Cameron Iron Works, Inc.
Carey Company, The Philip 186
Carnegie-Illinois Steel Corporation
Cast Iron Pipe Research Association, The
Caterpillar Tractor Co. 131
Centralia Chamber of Commerce 122
Chain Belt Co., The
Chaplin-Fulton Mfg. Co., The
Chapman Valve Mfg. Co., The
Chemical Process Co., Inc., The
Chicago Bridge & Iron Company 23
Chiksan Oil Tool Co., Ltd.
Clark Brothers Company
Classified Advertising 238-239
Cleveland Trencher Company
Climax-Molybdenum Company 70
Coffing Hoist Co. 163
Columbia Steel Company 12
Columbian Steel Tank Co.
Continental National Bank of Fort Worth
Continental Oil Co.
Continental Supply Company, The 129-141
Cooper, Fred E. 13
Cooper-Bessemer Corp., The 181
Copus Engineering Corp.
Core Laboratories, Inc. 195
Crane Co.
Cummins Engine Co. 28
Curtin, W. H., & Co., The

D

Darling Valve & Mfg. Co. 134
Davis Regulator Co.
Dayton Rubber Mfg. Co., The
Deere, John 158
Diamond Chain & Manufacturing
Dodge Mfg. Corporation
Doheny Stone Drill Co.
Dowell, Incorporated
Dresser, S. R., Mfg. Co. 170-171
Du Pont de Nemours & Co., Inc.

E

Eagle Picher Lead Co.
Eastman Oil Well Survey Co.
Economy Electric Lantern Co.
Edward Valve & Mfg. Co., The
Emsco Derrick & Equipment Company 132
Ensign Carburetor Company, Ltd. 212
Ethyl Gasoline Corporation
Evansville Chamber of Commerce 86

F

Failing, George E., Supply Company 162
First National Bank of Fort Worth
First National Bank in Houston
First National Bank & Trust Co. of Tulsa, The 155
Fisher Governor Company
Flora Chamber of Commerce 128
Fluor Corporation, Ltd., The
Foote Bros. Gear and Machine Corporation 85
Ford Motor Co.
Fort Worth Chamber of Commerce
Fort Worth Clearing House Association
Fort Worth National Bank, The
Foster Wheeler Corp.
Four Wheel Drive Auto Co., The
Foxboro Co., The
Franks Machine Shop 160
Franks Mfg. Co. 154
Frick-Reid Supply Corporation 95
Frisco Lines 126
Frost National Bank

G

Gardner-Denver Company
Garlock Packing Company, The
Gaso Pump & Burner Mfg. Co. 159
Gasoline Products Co., The
Gates Rubber Co., The
Gatke Corporation 150
General American Transportation Corporation—Terminal Division
General Electric Company
General Paint Corporation
General Power, Inc. 202
Geological Scientific Service Company 108
Geophysical Service, Inc.
Gilbert Brass Foundry 118
Gilmer Company, L. H.
Gilmore Wire Rope Division of Jones & Laughlin Steel Corporation 33
Girdler Corporation, The
Goodall Rubber Co. 29
Goodrich Co., B. F., The 3
Goodyear
Gott, H. P., Mfg. Co. 160
Goulds Pumps, Inc.
Graver Tank & Mfg. Co., Inc.
Gray Processes Corporation, The
Grossrohr-Verband G.m.b.H.
Gulberson Corporation 143
Gulf Oil Corp.
Gulf States Utilities Co.
Gustin-Bacon Mfg. Co.

H

Haering & Co., Inc., D. W.
Haliburton Oil Well Cementing
Hanlon-Buchanan, Inc.
Happy Belting Company
Harley Sales Company 130
Harnischfeger Corporation
Harrisburg Steel Corporation
Hazard Wire Rope Division of American Chain & Cable Co., Inc.
Hercules Tool Company
Hewitt Rubber Corp.
Hill-Hubbell & Co.
Hoard Exploration Company
Houston Lighting & Power Company
Hughes Tool Co. Back Cover and 136A-136B-136C-136D
Humble Oil & Refining Co.
Hunt Tool Company 199
Hydril Co.

I

Illinois Well Log Bureau, The 126
Independent Exploration Company 190
Ingersoll-Rand 27
International Derrick & Equipment Co., The
International Geophysics, Inc.
International Harvester Co.
International Nickel Company, Inc., The
International Petroleum Exposition 6
International Supply Co. 99
Iron Drilling Company 166

J

Jarecki Manufacturing Company
Jeffrey Mfg. Co., The
Jensen Brothers Manufacturing Co. 144
Jerguson Gage & Valve Co. 163
Johns-Manville Corporation
Johnston, M. O., Oil Field Service
Jones & Brooks, Inc.
Jones Company, S. M.
Jones & Laughlin Steel Corporation

K

Kane Boiler Works, Inc.
Kellogg, M. W., Company, The
Kennedy Vave Mfg. Co., The
Kerotest Manufacturing Co.
Keuffel & Esser Co.
Key Company
Keystone Driller Co. 128
Kibele Manufacturing Co.
Kinley Co., M. M.
Kinzbach Tool Co. 19
Kobe, Incorporated
Kroop Forge Company
Krupp 32

L

Laminated Shim Co., Inc.
Landis Machine Co., The
Lane-Wells Co., The 31
Larkin Packer Company, Inc. 119
Lawrenceville Machine Company 116
Layne and Bowler Co., The
Layne & Bowler, Inc.
Leland Equipment Co.
Le Roi Company
Leschen, A., Sons Rope Co. 127
Lincoln Electric Company, The 177
Linde Air Products Co., The
Link-Belt Company 145-146-149
Lockheed Aircraft Corporation
Lone Star Cement Corporation 11
Lucey Products Corporation 76
Ludlow Valve & Mfg. Co., The
Lufkin Foundry & Machine Co. 179
Lufkin Rule Co., The
Lummus Co., The
Lunkenheimer Co., The

Mc

McGregor Working Barrel Company 225
McKissick Products Corp. 115
McNamar Boiler & Tank Mfg. Co. 152

M

MacClatchie Manufacturing Company 173
Macwhyte Co. 113
Magnolia Airco Gas Products Co. 1
Maloney Tank Mfg. Co. Front Cover
Manhattan Rubber Mfg. Division
Mannesmannrohren Werke
Marmon-Herrington Co., Inc.
Marsh, James P., Corp. 124
Martin-Decker Corp.
Mathey Machine Works, C. A.
Mathey, Frank, Machine Works 168
Mattoon Association of Commerce 116
Mauser, K.-G.
Mayfair Hotel 218
Maxim Silencer Co., The
May, George S., Company
Medart Company 217
Meehanite Research Institute
Merco Nordstrom Valve Co.
Merla Tool Company
Metric Metal Works 34
Midco Tool & Supply Co.
Midcontinent Map Co. 137
Mid-Continent Supply Co.
Midwest Piping & Supply Company, Inc., The 26
Midwest Printing Co. 163
Miller Sand Pump Co., The
Mission Mfg. Co., The 114
Missouri Portland Cement Co. 103
Monsanto Chemical Company
Motor Improvements, Inc.
Murcell, Inc., U. C.
Murphy Diesel Company, Ltd. 8
Muskogee Iron Works

N

National Bank of Tulsa 104
National Supply Co., The 84
National Transit Pump and Machine Co.
National Tube Co.
Naylor Pipe Company
New Bedford Cordage 198
New Deal Specialty Co., The
Newman, Hender & Co., Ltd.
Novo Engine Co.
Nugent & Co., Inc., Mfrs., Wm. W.

O

O'Bannon Co., Walter 105
Oil Center Tool Co. 198
O.C.S. Mfg. Co., The 135
Oil Industry Mailing List Co. 163
Oil Well Supply Company 117
Oil Well Drilling Company 210
Oil-World Exposition, Inc.
O-K Machine & Manufacturing Co.
Oliver United Filters, Inc.
Olney Chamber of Commerce 109
Osage Metal Company
Oster Manufacturing Company
Otis Pressure Control, Inc. 160
Oxweld Acetylene Company

P

Page Fence Association 133
Page Steel & Wire Division of American Chain & Cable Co.
Parkersburg Rig & Reel Co., The 2
Parkhill-Wade
Patterson-Ballagh Corporation 109
Patterson Steel Company 156
Penberthy Injector Co.
Pennsylvania Grade Crude Oil Association
Perco, Inc.
Petroleum Advisers, Inc.
Petroleum Electric Power Club 121
Petroleum Publishing Company, The 17
Petroleum Rectifying Company 21
Philadelphia Gear Works
Pittsburgh-Des Moines Steel Company
Pittsburgh Equitable Meter Co.
Pittsburgh Steel Company 22
Plymouth Cordage Co.
Polymerization Process Corporation, The 18
Pomona Pump Co. 168
Porocel Corporation
Portable Rig Co. 157
Preformed Wire Rope
Prest Machine Works Co. 168
Prest-O-Lite Company, Inc., The
Price Co., H. C.
Pure Oil Co.

R

Reading-Pratt & Cady Division of American Chain & Cable Co., Inc.
Rector Well Equipment Co., Inc.
Reda Pump Co.

R

Reed Roller Bit Company 88A-88B-88C-88D-199
Regan Forge & Engineering Co. 199
Reid, Joseph, Gas Engine Co. 14
Reilly Tar & Chemical Corporation
Republic Steel Corp.
Rixmann, D., Lumber Co. 92
Ryerson & Son, Inc., Jiseph T.

S

St. Elmo Housing Company 110
St. Louis Cordage Mills 166
San Antonio, City of
Santa Fe R.R. 130
Satterlee Motor Company 163
Schlumberger Well Surveying Corporation 93
Sealed Power Corporation
Security Engineering Co. 169
Seismograph Service Corp.
Shafer Bearing Corporation 118
Shaffer Specialty Co., The 91
Shaffer Tool Works
Shand & Jurs Co.
Sharples Specialty Co.
Shell
S.K.F. Industries, Inc.
Skinner Co., M. B.
Smith, A. O., Corporation 4-5
Smith, A. O., Corporation, Meter Division
Smith Company, E. M. 125
Smith, H. C., Oil Tool Co. 198
Smith Company, Howard
Smith Meter Co.
Smooth-On Mfg. Co.
Socony-Vacuum Oil Co.
South Chester Tube Co.
Southwestern Gas & Electric Company
Spang Chalfant, Inc. 153
Spang & Company 111
Sperry-Sun Well Surveying Co.
Standard Brake Lining Co. 198
Star Drilling Machine Company 92
Stearns-Roger Manufacturing Co.
Steel Protection and Chemical Co.
Sterling Engine Company
Sturtevant Company, B. F.
Subterrex
Sullivan Machinery Company 94

T

Taylor Forge & Pipe Works
Taylor Instrument Companies
Technical Oil Tool Corporation
Terre Haute Chamber of Commerce 140
Texaco Development Corporation
Texas Electric Service Company
Texas Iron Works 107
Texas Steel Co.
Thermoid
Thornhill-Craver Co., Inc.
Timken-Detroit Axle Co.
Timken Roller Bearing Company 24
Timken Roller Bearing Company —Steel and Tube Division
Toledo Pipe Threading Machine Co., The
Tretolite Co.
Trinity Portland Cement Company
Tube Turns, Inc. 69
Tulsa Boiler & Machinery Co.
Tulsa Chamber of Commerce 20
Twin Disc Clutch Co.

U

Union Carbide & Carbon Corporation
Union Carbide Sales Company
Union Wire Rope Corporation Inside Front Cover
Unit Rig & Equipment Company 207
United American Bosch Corp.
United Motors Service, Inc.
United States Rubber Company 25
United States Steel Corp. Subsidiaries 12-117-123
United States Steel Products Company 12
Universal Atlas Cement Co. 123
Universal Butane Corporation 102
Universal Oil Products Co. 72

V

Visco Products Company 81
Vogt, Henry, Machine Co.

W

Waldron Corp., John
Wall Rope Works, Inc.
Walworth Company
Warren Petroleum Corporation
Watson-Stillman Co., The 140
Waukesha Motor Co. 30
Well Equipment Mfg. Corp. 161
Westcott & Greis 184
Western Machinery Company 144
Westinghouse Electric & Mfg. Co.
Wheatley Bros.
Wheeling Machine Products Co. 210
Wheland Co., The 16
Whitney Chain & Mfg. Co., The
Wickwire Spencer Steel Company
Williams & Co., J. H.
Wilson Manufacturing Co. 167
Wilson Welder and Metals Co., Inc.
W-K-M Company, Inc.
Woodworth Hotel 134
Worthington Pump & Machinery Corporation 151
Wyatt Metal & Boiler Works

Y

Young Engine Corp. 166
Young Radiator Company 142
Youngstown Sheet & Tube Co.

Z

Zink Burners, John 100


*The Oil Man's Calendar appears on Page 50*

# TRU-LAY *PREFORMED* NEVER BECOMES A *PORCUPINE*

● Because it is preformed a TRU-LAY drilling line never becomes a porcupine. Even when badly worn the broken surface wires lie flat and in place—never sticking up to tear "rough neck's" hands or unduly wear sheave or drum treads.

But that's more than mere safety. It is evidence that in TRU-LAY every wire and every strand is relaxed, at ease, free of internal torsional stresses. And being relaxed it is more limber and flexible; it resists kinking and whipping; is easier to handle—spools perfectly. More than that, however, the absence of internal strain makes TRU-LAY withstand fatigue better—last longer—give greater dollar value. Use the line that never becomes a porcupine: TRU-LAY Preformed.

GREEN SIGNIFIES SAFETY

**AMERICAN CABLE DIVISION**
**AMERICAN CHAIN & CABLE COMPANY, Inc.**
WILKES-BARRE, PENNSYLVANIA
Branches or Distributors in All Oil Field Centers

BUY ACCO QUALITY

**A FEW OF THE 137 AMERICAN CHAIN & CABLE INDUSTRIAL PRODUCTS**

**AMERICAN CHAIN DIVISION**
(DOMINION CHAIN COMPANY, Ltd., in Canada)
Weed Tire Chains • Welded and Weldless Chain • Malleable Castings
Acco-Morrow Lubricators

**AMERICAN CABLE DIVISION**
Tru-Lay Preformed Wire Rope • Tru-Loc Processed Fittings • Crescent Brand Wire Rope
Tru-Stop Brakes • Tru-Level Oil Controllers

**ANDREW C. CAMPBELL DIVISION**
Abrasive Cutting Machines • Floformers
Special Machinery • Nibbling Machines

**FORD CHAIN BLOCK DIVISION**
Chain Hoists • Trolleys

**HIGHLAND IRON & STEEL DIVISION**
Wrought Iron Bars and Shapes

**MANLEY MANUFACTURING DIVISION**
Automotive Service Station Equipment

**OWEN SILENT SPRING COMPANY, Inc.**
Owen Cushion and Mattress Spring Centers

**PAGE STEEL AND WIRE DIVISION**
Page Fence • Wire and Rod Products
Traffic Tape • Welding Wire

**READING-PRATT & CADY DIVISION**
Valves • Electric Steel Fittings

**READING STEEL CASTING DIVISION**
Electric Steel Castings, Rough or Machined Railroad Specialties

**WRIGHT MANUFACTURING DIVISION**
Chain Hoists • Electric Hoists and Cranes

*In Business for Your Safety*

## TRU-LAY *Preformed* ROTARY LINES

ALL AMERICAN CABLE DIVISION ROPES MADE OF IMPROVED PLOW STEEL ARE IDENTIFIED BY THE EMERALD STRAND

UNIVERSITY OF MICH 1
GENERAL LIBRARY 23
ANN ARBOR MICH 39

*If Rock Bits Could Talk . . .*

**In Hughes Tricone Rock Bits You Get THE Rock Bit for THE Formation**

HUGHES TOOL COMPANY
HOUSTON, TEXAS—U. S. A.